HEALTH AND SAFETY PLAN
General Information

Location: Point Comfort, Texas
Activities: RCRA/Corrective Action Scoping Meeting (incl. focused inspection)
Dates: Monday through Thursday, August 20-23, 2012
Personnel: Frances Verhalen, Nancy Fagan

Emergency Information

Emergency Phone: 911
Procedures: Exit the Facility and assess the situation
Medical Facilities: DeTar Hospital, 506 E. San Antonio, Victoria, TX, (318) 575-7441
Directions to Local Medical Facilities: See Attached map with Directions.
Check Potential Hazards: Reference RCRA Corrective Action Facility Inspection JHA

X Radiation	X Toxics	X Fire/Explosion	X Corrosives
___ O_2 Deficiency	X Noise	X Physical	X Biological
___ Dusts	X Heat/Cold Stress	___ Other: ___	

Hazard Description: Toxic chemical processes, slip/trip/fall, biological, heat stress, solar radiation and vehicular traffic. Review of waste management procedures and inspection of process and waste storage areas. Personnel will be accompanied by facility staff at all times.

Prevention: *All site safety procedures shall be followed. Areas with potential exposure to chemical, physical and biological hazards shall be avoided if at all possible. Team members shall not enter confined spaces. In case of emergency, all inspection staff shall exit and allow facility representatives to contain and manage incident.*

Safety Supplies: Reference RCRA Corrective Action Facility Inspection JHA

This site HASP has been reviewed and constitutes the minimum anticipated safety requirements for personnel engaged in field activities at this project site. However, the Project Leader has the authority to change these requirements, based upon the conditions present at the site.

Approved by:

Project Leader: Frances Verhalen

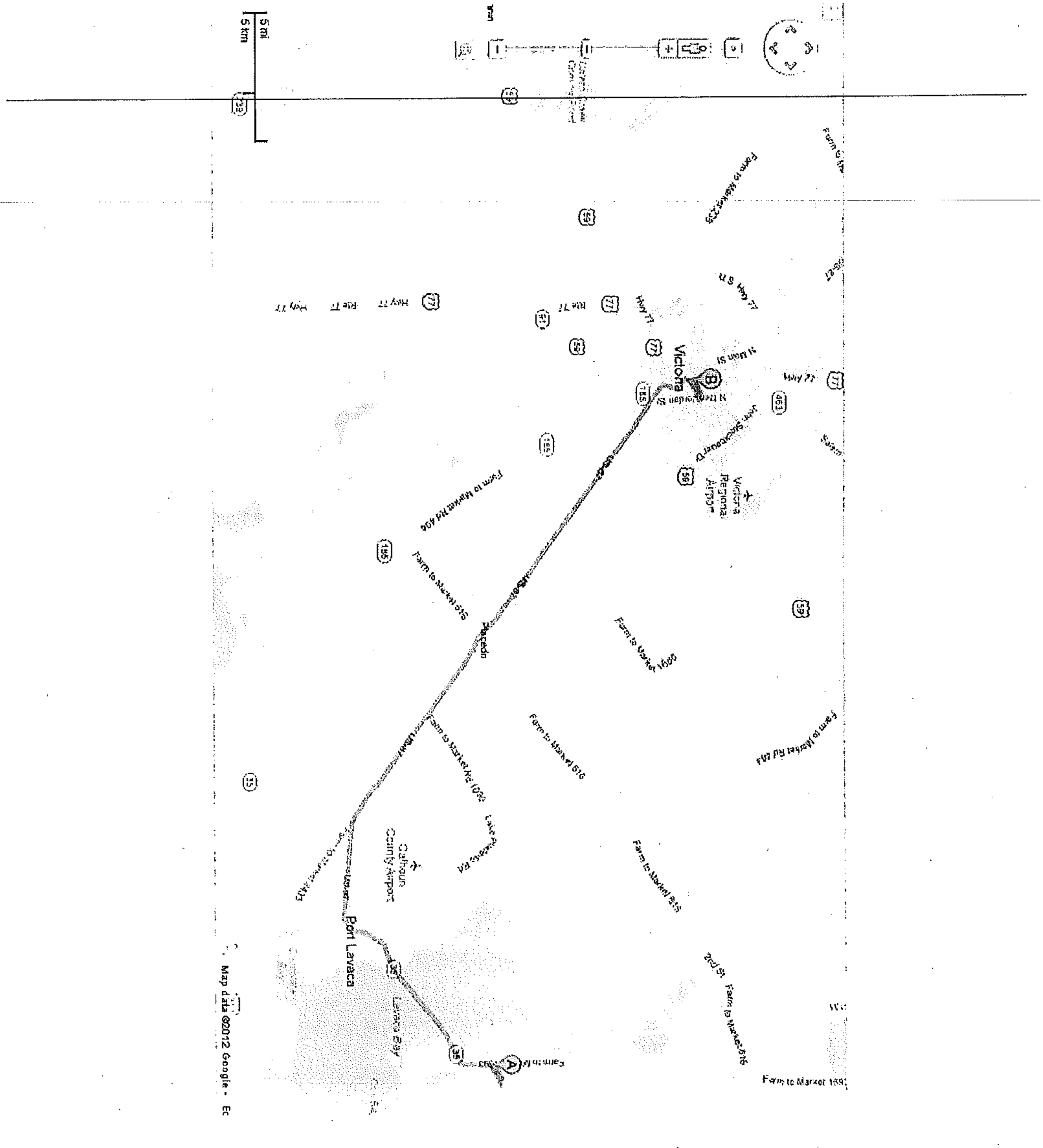
Phone Number: (214) 665-2172 Date: August 14, 2012

Section Chief: Troy Stuckey

Phone Number: (214) 665-4462 Date: 8-17-12

Health and Safety Officer: Kendra Gomez

Phone Number: (214) 665-7225 or (214) 205-7643 Date: 8/15/12



Victoria
Port Lavaca
Victoria Regional Airport
Calhoun County Airport
Lavaca Bay
Placedo
Farm to Market Rd 406
Farm to Market 616
Farm to Market 1686
Farm to Market Rd 1090
Farm to Market Rd 404
Farm to Market 2433
Farm to Market 616
Farm to Market 1593
Farm to Market 236
Lake Placedo Rd
N Main St
U S Hwy 77
Hwy 77
Rte 77
Map data ©2012 Google
5 mi
5 km

JOB HAZARD ANALYSIS

Hazard Types (HT)

1. Toxic Chemic
2. Flammable Chemicals
3. Corrosive Chemicals
4. Environmental
5. Explosion (Chemical Reaction)
6. Explosion (Over pressurization)
7. Mechanical/Vibration
8. Electrical (Shock, Short Circuit)
9. Electrical (Fire)
10. Electrical (Static, ESD)
11. Electrical (Loss of Power)
12. Ergonomic (Overexertion)
13. Ergonomic (Human Error)
14. Vibration
15. Fall (Slips/Trips)
16. Fall (To a Different Level)
17. Excavation (Collapse)
18. Fire, Heat, Thermal, Cold
19. Noise
20. Radiation
21. Visibility
22. Weather
23. Caught (In, On, Between)
24. Struck (By, Against)
25. Driving
26. Confined Space
27. Other

Job Task: RCRA Corrective Action Facility Inspection

Job Frequency/Duration:
1-6 year per inspector;
1 – 5 days/site; may conduct several site inspections during one trip

Tools Used:
Digital Camera
PIDs/FIDs
4 Gas Meters
Sampling containers/bottles
Coliwasa sampler
Bailers –GW Sampling
Low flow pumps – GW Sampling
Soil scoops
Hand Auger/Slam Bar

Chemicals Used:
Hydrochloric Acid (rarely)
Nitric Acid
Sulfuric Acid
Methanol
Liquidnox/Alconox

CRITICAL TO SAFETY (CTS)

Risk Estimation Matrix

Probability of Occurrence of Harm	SEVERITY OF HARM			
	Catastrophic	Serious	Moderate	Minor
VERY LIKELY	Extreme	High	High	Medium
LIKELY	High	High	Medium	Low
UNLIKELY	Medium	Medium	Low	Negligible
REMOTE	Low	Low	Negligible	Negligible

* High = CTS tasks should receive engineering controls prior to assigning administrative or PPE controls.

Job Description: Personnel conduct RCRA corrective action inspections at industrial facilities to determine regulatory compliance and risk to human health and the environment by potential affected media. Personnel visit TSDFs and generators (SQG, LQG, and conditional exempt). The quantity of hazardous waste on-site can range from a few drums to several million gallons. Types of facilities visited included chemical, petrochemical, petroleum refineries, mineral/mining facilities, federal facilities, electrolytic platters, etc.

Step #	Procedures (LOP Procedure Step)	Potential Hazards	HT	Check CTS	Recommended Safe Practice	PPE
1	Conduct file review; Communicate with State counterpart; develop site-specific Health & Safety Plan and inspection strategy/plan	None	NA	NA	NA	NA
2	Orgainze personnel/equipment/supplies; Deploy to location either by car or airplane (personnel drive if travel time is less than 5hr; if travel time is between 5-7 hours, personnel may consider driving)	Ergonomics, Driving, Weather	13, 21, 22, 24, 25	Medium	Careful lifting techniques, secure grip, packing at desk level or higher, secure equipment within vehicle; Drive defensivly; do not text while driving; use hands-free telephonic device	None
3	Site Entry: Personnel conduct a tailgate meeting either the night before or the morning of the inspection to discuss the inspection stratgey/H&S issues amongst themselves or with State. Prior to entry, personnel may drive the site permineter to obtain their situational awareness (i.e. site layout, safety issues, surface waters, vapors or visible emissions, shimmers that indicate heat sourcers, etc). Personnel present credentials and conduct opening meeting with site personnel. At this time, personnel are given the facility's safety brief and site-specific PPE may be issued. Personnel conduct an administrative review of facility records and a facility walk-through, which is accomplished on foot or vehicle, depending upon size of facility. Personnel focus on remedial actions and processes conducted by the facility. Personnel may conduct environmental sampling (i.e. contaminated soil, groundwater, surface water, etc.)	Chemicals, thermal/cold stress, fire, explosion, noise, slips/trips/falls, biological, electricity, radiation	1-8, 12, 15, 16, 18-20, 22-24, 26, 27	[redacted]	Reference table below and PPE Hazard Assessment Form	

A **Point**

Comfort, TX

Depart FM-1593 / County Rd toward TX-35 W

0.4 mi

Turn right onto TX-35 W

Pass Motel 6 in 4.4 mi

7.6 mi

Bear right onto US-87

2.5 mi

Bear right onto US-87 N

20.3 mi

Bear right onto US-87

Turn right onto TX-185 / N Laurent St

Exxon on the corner

0.7 mi

Turn left onto US-59 Branch / E Rio Grande St

Wienerschnitzel on the corner

0.4 mi

Turn right onto N Cameron St

KIA on the corner

0.1 mi

Turn right onto E San Antonio St

132 ft

Arrive at 506 E San Antonio St, Victoria, TX 77901

The last intersection is N Cameron St

If you reach N East St, you've gone too far

B **506 E San Antonio St, Victoria, TX 77901**

Step #	Procedures (LOP Procedure Step)	Potential Hazards	HT	Check CTS	Recommended Safe Practice	PPE
4	At the conclusion of the inspection, personnel conduct an exit meeting with facility personnel to discuss discrepancies.	None	NA	NA	NA	NA
5	If sampling activites occurred, personnel prepare samples for shipment (labels, packaging, etc). Manifests and shipping paperwork are prepared and samples sent for analysis.	Chemicals, thermal/cold	1-4, 18	Medium		
6	Decontaminate and/or dispose of PPE and equipment utilized during the inspection.	Chemicals, thermal/cold	1-4, 18	Medium		
7	If applicable, personnel drive to next facility and repeat steps 3 – 6 above. If not, personnel proceed to step 8 below.	Reference Steps 3 - 6				
8	At completion of visit, return to Regional Office and proceed with post inspection procedures (administrative in nature).	Ergonomics, Driving, Weather	13, 21, 22, 24, 25	Medium	Careful lifting techniques, secure grip, packing at desk level or higher, secure equipment within vehicle; Drive defensivly; do not text while driving; use hands-free telephonic device	None

HAZARDS—NOTE ALL POTENTIAL HAZARDS ASSOCIATED WITH THE JOB (CHECK ALL THAT APPLY)

Physical						
General	☒	thermal stress	☒	cold	☒	noise
	☒	explosion	☒	fire	☒	weather
	☒	fatigue	☐	violence	☒	illness/injury
Radiation	☒	ionizing	☐	microwave	☐	light
Vehicles	☒	traffic	☒	heavy equip	☒	forklift
	☐	helicopter	☐	small aircraft	☐	boat
Boat Ops	☐	sediment sampling	☐	rapid water	☐	open water
	☐	diving	☐	electrofish		
Industrial	☒	comp gas	☒	electricity	☐	confined space
	☒	equip	☒	moving parts		
Overhead	☒	obstruction	☒	falling objects		
Elevation	☒	roof	☐	scaffold	☒	ladder
	☒	stairs	☒	catwalk		
Slips/trips	☒	terrain	☒	debris	☒	slippery
	☒	trench	☒	pits/holes		
Other physical hazards:			☐			

Biological						
Agriculture	☐	CAFO	☐	fish	☐	farm animals
Animals	☒	dogs	☒	feral animals	☒	snakes
Insects	☒	spiders	☒	mosquitoes	☒	wasp/hornet
	☒	bees				
Pathogens	☐	bloodborne	☐	sewage	☐	med/lab
Other Biological:	☒	poisonous plants, ticks, scorpions,				

Chemical						
Containers	☒	ammonia	☒	chlorine	☒	other
VOCs	☒	solvents	☒	fuel	☒	oils
Wastes	☐	sewer	☒	landfill	☒	smoke/dust/fume
	☒	metals	☒	PCBs	☒	paints/surfacing
Particulates	☒	fibers	☒	diesel	☒	asbestos
Sampling	☒	acids	☒	bases		
Other Chemicals:	☒	Radioisotopes; chemical laboratories associated with site				

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED (CHECK ALL THAT APPLY)

Feet:	☐	safety boots	☒	steel-toe boots	☐	shank
	☒	rubber boots/booties	☐	waders	☒	Other: Site-Specific
Gloves:	☒	leather	☐	cotton	☐	cut-resistant
	☒	chemical resist	☒	disposable		
Body:	☒	safety vest	☐	pfd	☐	harness
	☒	tyvek	☒	sarnex-tyvek	☒	coveralls
Eyes:	☒	safety glasses	☒	sunglasses	☒	goggles
Head:	☒	hard hat	☒	hearing protection	☒	respirator

OTHER REQUIRED SAFETY EQUIPMENT/TRAINING

☒	dosimetry	☒	communication	☒	decon
☐	first aid kit	☐	fire extinguish	☐	flares
☐	chains/studs	☐	eye wash/shower		

☐	24 hr HAZWOPER	☒	40 hr HAZWOPER	☒	HAZWOPER Annual Refresher
☒	TLD Program (case by case)	☒	RPP Program	☒	Medical Surveillance
☒	1st Aid/CPR	☒	Other: 1) Defensive Driving		

COMMENTS:

Personnel may be potentially exposed to a wide variety of industrial chemicals during inspections. Primary routes of entry are inhalation, contact, and absorption. Some chemicals encountered could also pose reproductive hazards. Personal air sampling data is not available to document potential inhalation exposures. Further analysis is required. Pursuant to site specific conditions, personnel may be required to wear full-face respirators to minimize potential inhalation hazards. Personnel are routinely exposed to hazardous noise; however, exact sound levels are not known at this time. Further analysis is required. Sources of hazardous noise include heavy equipment such as drill rigs, track hoes, front end loaders, forklifts, etc. Personnel are required to wear ear plugs and/or muffs while working around hazardous noise sources. Employees engage in field activities during all types of weather conditions, to include extreme heat and cold. Thermal stress is a viable hazard; therefore personnel must ensure adequate hydration and appropriate field gear is worn while engaging in field activities. In addition, field acitivies are conducted on various terrain and in remote locations where pits, holes, and trenches are encountered. Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with such hazards. Due to the nature of industrial facilities, potential fire and or/ explosions hazards are probable. Personnel may be required to wear nomex coveralls and follow site-specific safety/emergency response procedures if the situation dictates. Personnel are usually accompanied by site personnel. Personnel may climb structures, greater than 4 feet above ground surface, to observe potential deficiencies. Personnel climb stairways with approriate handrails and walkways. Personnel must inspect stairways/walkways to ensure structural integrity and/or question site personnel regarding structural stability prior to climbing. Personnel may climb step ladders or extension ladders to inspect equipment or condust sampling. Employees must pay attention to proper ladder selection and electrical shock precautions. Potential ionizing radation exposures may occur while personnel utilize the XRF unit. Personnel wear finger dosimeters and are required to be placed on the Regional Radition Protection Program. REFERENCE PPE HAZARD ASSESSMENT FORM FOR SPECIFIC EXPLANATION OF ALL HAZARDS ASSOCIATED WITH THIS JOB HAZARD ANALYSIS.

CERTIFICATION OF HAZARD ASSESSMENT

SUPERVISOR: FOR T. STUCKEY DATE: 8/14/12

SAFETY/HEALTH REPRESENTATIVE: DATE:

Personal Protective Equipment Recommendations

Where engineering and administrative controls are not feasible or sufficient for controlling hazards, PPE must be used to protect workers. The following PPE are recommended for the noted tasks above:

Eye and Face Protection			
X	Safety glasses with side shields		Reflective goggles/face shield
X	Chemical splash goggles		Cutting/brazing/welding eye protection
	Face shield	X	Other: Sunglasses
Head Protection			
X	Hard hat		Helmet, cowl, hood
	Welding helmet/mask		Other:
Foot Protection			
X	Steel-toed safety shoes/boots		Other:
X	Chemical-resistant boots/booties		
Body Protection			
	Apron (splash, work)		Head-reflective garments
	Lab coat		Sleeves (cut-resistant)
X	Coveralls (work, chemical-resistant) Hazard Type: 1)Fire/Explosion; 2) Contaminated Media Type coverall: 1) Nomex; 2)Tyvek and/or Sarnex	X	Other: Appropriate field gear for the weather (thermal/cold stress); Reflective Safety Vest
Respiratory Protection			
X	Respirator	X	Type of respirator: Full-face APR; cartridges based upon constituent of concern
Hand Protection			
	Rubber insulating gloves		Rubber insulating sleeves
	Rubber insulating hoods	X	Other: Leather (use with hand auger or slam bar); Chemical Resistant Gloves (i.e. Nitrile or Neoprene)*

Other:
Ear plugs and/or muffs
Sunscreen
Insect repellent

Site-specific PPE as directed by industrial site (i.e. metatarsal guards, shanks, faceshield, etc). All site-specific PPE will be provided by the industrial facility.

*Chemical resistant gloves must be selected based upon adequate breakthrough times for specific chemicals of concern. Please contact the R6 Health & Safety Office for assistance in glove selection.

PPE Hazard Assessment Form

HEALTH AND SAFETY HAZARDS		
Chemical Hazards		Description/Mitigation
X	Vapors/gases	Personnel may be potentially exposed to a wide variety of industrial chemicals during inspections and sampling activities.
X	Dusts/mists/fumes	Personnel may be potentially exposed to a wide variety of industrial chemicals during inspections and sampling activities.
X	Liquid splash	Personnel may be potentially exposed to a wide variety of industrial chemicals during inspections and sampling activities.
Comments:		Primary routes of entry are inhalation, contact, and absorption. Some chemicals encountered could also pose reproductive hazards. Personal air sampling data is not available to document potential inhalation exposures. Further analysis is required. Pursuant to site specific conditions, personnel may be required to wear full-face respirators to minimize potential inhalation hazards. Personnel are required to wear, at a minimum, Level B (tyvek and/or sarnex coveralls, full-face respirators, applicable cartridges for the chemicals of concern, chemical resistant boots/booties and gloves) during sampling activities.
Physical Hazards		**Description/Mitigation**
X	Ergonomics	Personnel may experience repetitive motions, frequent or heavy lifting, pushing, pulling, or carrying of heavy objects; and prolonged awkward postures. Vibration and cold may add risk to these work conditions. The level of risk depends on the intensity, frequency, and duration of the exposure to these conditions. Careful lifting techniques along with secure grips and packing at desk level or higher will reduce potential exposures.
X	Heat — sparks, molten splash, high temperatures	Employees engage in field activities during all types of weather conditions, to include extreme heats. Thermal stress is a viable hazard; therefore personnel must ensure adequate hydration and appropriate field gear is worn while engaging in field activities.
X	Cold — cryogens, cold temperatures	Employees engage in field activities during all types of weather conditions, to include cold weather. Although field activities are performed in termperate climates, cold weather may be a potential hazard. Appropriate field gear must be worn.
X	Electricity	Employees may be exposed to a variety of electrical components at industrial facilities. Personnel adhere to site-specific safety procedures to reduce potential exposures. In addition, personnel are usually accompanied by site personnel.
X	Radiation — ionizing, non-ionizing	Personnel may encounter ionizing radiation, above background levels, while operating the XRF. These instances, although rare, require personal exposure monitoring. EPA employees will be enrolled in the Regional TLD program and assigned a finger dosimeter for use during XRF operations. In addition, personnel also follow site-specific safety procedures.
X	Noise	Personnel are routinely exposed to hazardous noise; however, exact sound levels are not known at this time. Further analysis is required. Sources of hazardous noise include heavy equipment, such as drill rigs, front end loaders, forklifts, etc. Personnel are required to wear ear plugs and/or muffs while working around hazardous noise sources.
X	Fire/Explosion	Due to the nature of industrial facilities, potential fire and or/ explosions hazards are possible. Personnel may be required to wear Nomex coveralls during site entry procedures. Personnel also follow site-specific safety and emergency response procedures if the situation dictates. In addition, personnel are always accompanied by site personnel.
X	Slips/Trips/Falls	Slips/trips/falls are always likely when walking walking through an industrial plant. In addition, many of the field acitivies are conducted outside where pits, holes, and various terrains are encountered. Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with such hazards.
X	Elevation - Falls	Personnel may climb units, greater than 4 feet above ground surface, to observe potential deficiencies. Personnel climb stairways with approriate handrails, enclosed scaffolding, and/or ladders affixed to various units. Personnel must inspect stairways/walkways to ensure structural integrity and/or question site personnel regarding structural stability prior to climbing. Personnel may climb step ladders or extension ladders to inspect equipment or condust sampling. Personnel must pay close attention to the Duty Rating of the ladder and the combined weight of the user and materials. Select a ladder with the proper capacity. Also, be sure to select a ladder of proper height to reach the work area without overextending. Be aware of wires, electrical devices and live electrical circuits. Metal ladders conduct electricity and can create a danger of electrocution. Failure to read and follow instructions regarding electrical safety could result in serious personal injury or death.
X	Compressions — pinch, crush, rollover	Industrial sites have a wide variety of struck by, caught in between, and compression hazards due to the amount of materials and heavy equipment in place. Personnel may be working near heavy equipment as part of facility operations (forklifts, trucks, etc) and must maintain a safe distance from equipment with moving parts. Reflective safety vests must be worn to ensure they are visible to the maximum extent possible to vehicle movement.
X	Other	Vehicular accidents and traffic are potential hazards encountered while driving to and from municipal plants. Personnel are required to take Defensive Driving Training. Personnel are to use a hands-free telephonic device and are not to text while driving.

Biological Hazards		Description/Mitigation
X	Animals/Insects	Employees may encounter a variety of insects and snakes while in the field. These include snakes, mosquitos, bees, wasps, spiders, feral animals, etc. Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with such animals/insects.
X	Other	Employees are often in remote locations, in which poison ivy and other infectious plants are present. Personnel must be trained to ensure they are aware of the surroundings and avoid plants to prevent injury/illness. Cut-resistant gloves should also be utilized.

Completed by: Kendra Gomez & Paul James **Date: July 5, 2011**

SHEMP Review_____ **Date:**_____

SWMU/AOC review

Formosa Plastics Corporation, Texas
Point Comfort, TX

AREAS OF CONCERN			
1	Storm Water Outfalls 6, 7, 8, and 9 ✓		no
1a	Outfall 006 ✓		no
1b	Outfall 007 ✓		no
1c	Outfall 008 ✓		no
1d	Outfall 009 ✓		~~no~~
2	Soil Debris Piles Northeast of New SPVC Facility ✓		Yes
3	LLDPE Plant: Tank DO 615 - Water Separation Unit from Die Cut Process	✓	no / No
4	LLDPE Plant: Heavy Ends Tank Receiving Waste from the Solvent Recovery Unit	✓	no / No
5	HDPE Plant I: Waste Hexane Drum and Waste Hexane Stripper HDPE Plant II: Tank T801 - Centrifugal Dryer Filtrate Unit	✓	NFA ~~AOC~~
6	Central Maintenance Shop and Maintenance Waste: Wash Down Pad, Oil Water Separator, and Used Oil Storage Vessel ✓		
6a	Wash Down Pad ✓		no
6b	Oil Water Separator ✓		Yes housekeeping
6c	Used Oil Storage Vessel ✓		no
7	Waste Management Units listed on TCEQ NOR and located in the Combined Wastewater Treatment Plant: listed on TCEQ NOR as Units 27, 36, 37, 40, and 49 ✓		AOC - yes request overflow pt
7a	Unit 27	✓	no
7b	Unit 36	✓	no
7c	Unit 37	✓	no
7d	Unit 40	✓	~~yes~~ maybe
7e	Unit 49	✓	no

Field Notes
Aug 20-23, 2012
Freeland

Date:

Formosa Plastics Corporation, Texas
Point Comfort, TX

	SOLID WASTE MANAGEMENT UNITS	Keep (Y/N)	If Y, reason No
1	Hazardous Waste Storage Tank DT405 - Tank: listed on TCEQ NOR as Unit 023	✓	maybe - based on closure doc.
2	Hazardous Waste Storage Tank DT 407A: listed on TCEQ NOR as Unit 024	✓	no
3	Hazardous Waste Storage Tank DT 407B: listed on TCEQ NOR as Unit 025	✓	no
4	Brine Filter Press Roll-off Box Container Storage Area: listed on TCEQ NOR as Unit 026	✓	maybe - based on analytical
5	Storage Pad by EDC Unit: listed on TCEQ NOR as Unit 031	✓	maybe - analytical; add to AOC descrip.
6	EDC Process Unit within ISBL System Container Storage Area: listed on TCEQ NOR as Unit 035	✓	no
7	HDPE II Process Area within the ISBL System Container Storage Area, also known as HDPE Sump: listed on TCEQ NOR as Unit 039	Ask for design specs	maybe based on integrity rpt
8	Expansion Technical, Less than 90-day Drum Storage Area: listed on TCEQ NOR as Unit 042 ✓		no
9	Raw Water Pond Receiving Blow-down from Demineralization Unit, Surface Impoundment: listed on TCEQ NOR as Unit 043 ✓		maybe - analytical
10	Chlor-Alkali - IEM Unit within the ISBL System Container Storage Area: listed on TCEQ NOR as Unit 045 and inactive since August 24, 2009 ✓		no
11	SPVC Technical, Less than 90-Day Drum Storage Area: listed on TCEQ NOR as Unit 050 ✓		no
12	Olefins Plant Area: Zimpro OL-1 and OL-2 Wet Air Oxidation Units (wastewater treatment under the TPDES permit) ✓		no
13	Satellite Accumulation Storage Areas ✓		
a.	Laboratory Wastes - Satellite Accumulation Areas SPVC 1/2 ✓	2/2 ✓ maybe	House keeping: R+D /send photo
b.	Spray Painting Wastes- Satellite Accumulation Areas		Maybe - outside? Check w/ Matt
c.	Sand Blast Wastes- Satellite Accumulation Areas		No

Closeout SWMUs on NOR

Existing 2008 Order

* buried drums
* CWTP sulfur area
* Oil/water tank drum pad
* Soil pile
* Laydown yard Railcar maintenance yard
* EDC AOC

Date:

APPENDIX H
TESTAMERICA LABORATORY ANALYTICAL REPORT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-46769-1
Client Project/Site: Formosa Point Comfort

For:
Tetra Tech MM Inc
7800 Shoal Creek Blvd
Suite 253 East
Austin, Texas 78757

Attn: Mr. Eric Klink

Authorized for release by:
12/7/2011 9:38:29 AM
Cathy Upton
LAN Analyst
cathy.upton@testamericainc.com

Designee for

Sachin Kudchadkar
Project Manager II
sachin.kudchadkar@testamericainc.com

Table of Contents

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

Job ID: 600-46769-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-46769-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
Method(s) 8260B: The method blank for batch 67522 contained Methylene chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No other analytical or quality issues were noted.

Detection Summary

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

Client Sample ID: D-33 — Lab Sample ID: 600-46769-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.58	J	5.0	0.56	ug/L	1		8260B	Total/NA
Chlorobenzene	1.4	J	5.0	0.82	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	38		5.0	0.50	ug/L	1		8260B	Total/NA
1,2-Dichloroethane	14		5.0	1.0	ug/L	1		8260B	Total/NA
1,1-Dichloroethene	5.8		5.0	0.76	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	5.1		5.0	0.56	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	4.6	J	5.0	0.88	ug/L	1		8260B	Total/NA
Tetrachloroethene	1.6	J	5.0	1.2	ug/L	1		8260B	Total/NA
Trichloroethene	4.0	J	5.0	1.6	ug/L	1		8260B	Total/NA
Vinyl chloride	42		5.0	0.85	ug/L	1		8260B	Total/NA

Client Sample ID: P-55 — Lab Sample ID: 600-46769-2

No Detections

Client Sample ID: P-9 — Lab Sample ID: 600-46769-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	37		5.0	0.50	ug/L	1		8260B	Total/NA
1,2-Dichloroethane	16		5.0	1.0	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	2.0	J	5.0	0.56	ug/L	1		8260B	Total/NA
Trichloroethene	17		5.0	1.6	ug/L	1		8260B	Total/NA
Vinyl chloride	18		5.0	0.85	ug/L	1		8260B	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 600-46769-4

No Detections

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

Client Sample ID: D-33
Date Collected: 11/28/11 14:14
Date Received: 12/01/11 10:17

Lab Sample ID: 600-46769-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.3	U	10	2.3	ug/L			12/02/11 19:06	1
Benzene	**0.58**	**J**	5.0	0.56	ug/L			12/02/11 19:06	1
Chlorobromomethane	0.81	U	5.0	0.81	ug/L			12/02/11 19:06	1
Bromoform	0.77	U	5.0	0.77	ug/L			12/02/11 19:06	1
Bromomethane	2.2	U	10	2.2	ug/L			12/02/11 19:06	1
2-Butanone (MEK)	1.6	U	10	1.6	ug/L			12/02/11 19:06	1
Carbon disulfide	1.7	U	10	1.7	ug/L			12/02/11 19:06	1
Carbon tetrachloride	0.92	U	5.0	0.92	ug/L			12/02/11 19:06	1
Dibromochloromethane	0.92	U	5.0	0.92	ug/L			12/02/11 19:06	1
Chlorobenzene	**1.4**	**J**	5.0	0.82	ug/L			12/02/11 19:06	1
Chloroethane	1.7	U	10	1.7	ug/L			12/02/11 19:06	1
Chloroform	0.82	U	5.0	0.82	ug/L			12/02/11 19:06	1
Chloromethane	0.85	U	10	0.85	ug/L			12/02/11 19:06	1
1,1-Dichloroethane	**38**		5.0	0.50	ug/L			12/02/11 19:06	1
1,2-Dichloroethane	**14**		5.0	1.0	ug/L			12/02/11 19:06	1
1,1-Dichloroethene	**5.8**		5.0	0.76	ug/L			12/02/11 19:06	1
cis-1,2-Dichloroethene	**5.1**		5.0	0.56	ug/L			12/02/11 19:06	1
trans-1,2-Dichloroethene	**4.6**	**J**	5.0	0.88	ug/L			12/02/11 19:06	1
1,2-Dichloropropane	1.4	U	5.0	1.4	ug/L			12/02/11 19:06	1
cis-1,3-Dichloropropene	0.97	U	5.0	0.97	ug/L			12/02/11 19:06	1
trans-1,3-Dichloropropene	0.59	U	5.0	0.59	ug/L			12/02/11 19:06	1
Ethylbenzene	1.3	U	5.0	1.3	ug/L			12/02/11 19:06	1
2-Hexanone	1.4	U	10	1.4	ug/L			12/02/11 19:06	1
Methylene Chloride	1.4	U	10	1.4	ug/L			12/02/11 19:06	1
4-Methyl-2-pentanone (MIBK)	1.1	U	10	1.1	ug/L			12/02/11 19:06	1
Styrene	0.56	U	5.0	0.56	ug/L			12/02/11 19:06	1
1,1,2,2-Tetrachloroethane	0.80	U	5.0	0.80	ug/L			12/02/11 19:06	1
Tetrachloroethene	**1.6**	**J**	5.0	1.2	ug/L			12/02/11 19:06	1
Toluene	0.55	U	5.0	0.55	ug/L			12/02/11 19:06	1
1,1,1-Trichloroethane	0.98	U	5.0	0.98	ug/L			12/02/11 19:06	1
1,1,2-Trichloroethane	0.53	U	5.0	0.53	ug/L			12/02/11 19:06	1
Trichloroethene	**4.0**	**J**	5.0	1.6	ug/L			12/02/11 19:06	1
Vinyl acetate	0.60	U	10	0.60	ug/L			12/02/11 19:06	1
Vinyl chloride	**42**		5.0	0.85	ug/L			12/02/11 19:06	1
o-Xylene	0.93	U	5.0	0.93	ug/L			12/02/11 19:06	1
m-Xylene & p-Xylene	1.3	U	10	1.3	ug/L			12/02/11 19:06	1
Xylenes, Total	2.0	U	5.0	2.0	ug/L			12/02/11 19:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*12/02/11 19:06*	*1*
Dibromofluoromethane	*83*		*62 - 130*		*12/02/11 19:06*	*1*
4-Bromofluorobenzene	*94*		*67 - 139*		*12/02/11 19:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*79*		*50 - 134*		*12/02/11 19:06*	*1*

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

Client Sample ID: P-55
Date Collected: 11/29/11 11:35
Date Received: 12/01/11 10:17

Lab Sample ID: 600-46769-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.3	U	10	2.3	ug/L			12/02/11 19:31	1
Benzene	0.56	U	5.0	0.56	ug/L			12/02/11 19:31	1
Chlorobromomethane	0.81	U	5.0	0.81	ug/L			12/02/11 19:31	1
Bromoform	0.77	U	5.0	0.77	ug/L			12/02/11 19:31	1
Bromomethane	2.2	U	10	2.2	ug/L			12/02/11 19:31	1
2-Butanone (MEK)	1.6	U	10	1.6	ug/L			12/02/11 19:31	1
Carbon disulfide	1.7	U	10	1.7	ug/L			12/02/11 19:31	1
Carbon tetrachloride	0.92	U	5.0	0.92	ug/L			12/02/11 19:31	1
Dibromochloromethane	0.92	U	5.0	0.92	ug/L			12/02/11 19:31	1
Chlorobenzene	0.82	U	5.0	0.82	ug/L			12/02/11 19:31	1
Chloroethane	1.7	U	10	1.7	ug/L			12/02/11 19:31	1
Chloroform	0.82	U	5.0	0.82	ug/L			12/02/11 19:31	1
Chloromethane	0.85	U	10	0.85	ug/L			12/02/11 19:31	1
1,1-Dichloroethane	0.50	U	5.0	0.50	ug/L			12/02/11 19:31	1
1,2-Dichloroethane	1.0	U	5.0	1.0	ug/L			12/02/11 19:31	1
1,1-Dichloroethene	0.76	U	5.0	0.76	ug/L			12/02/11 19:31	1
cis-1,2-Dichloroethene	0.56	U	5.0	0.56	ug/L			12/02/11 19:31	1
trans-1,2-Dichloroethene	0.88	U	5.0	0.88	ug/L			12/02/11 19:31	1
1,2-Dichloropropane	1.4	U	5.0	1.4	ug/L			12/02/11 19:31	1
cis-1,3-Dichloropropene	0.97	U	5.0	0.97	ug/L			12/02/11 19:31	1
trans-1,3-Dichloropropene	0.59	U	5.0	0.59	ug/L			12/02/11 19:31	1
Ethylbenzene	1.3	U	5.0	1.3	ug/L			12/02/11 19:31	1
2-Hexanone	1.4	U	10	1.4	ug/L			12/02/11 19:31	1
Methylene Chloride	1.4	U	10	1.4	ug/L			12/02/11 19:31	1
4-Methyl-2-pentanone (MIBK)	1.1	U	10	1.1	ug/L			12/02/11 19:31	1
Styrene	0.56	U	5.0	0.56	ug/L			12/02/11 19:31	1
1,1,2,2-Tetrachloroethane	0.80	U	5.0	0.80	ug/L			12/02/11 19:31	1
Tetrachloroethene	1.2	U	5.0	1.2	ug/L			12/02/11 19:31	1
Toluene	0.55	U	5.0	0.55	ug/L			12/02/11 19:31	1
1,1,1-Trichloroethane	0.98	U	5.0	0.98	ug/L			12/02/11 19:31	1
1,1,2-Trichloroethane	0.53	U	5.0	0.53	ug/L			12/02/11 19:31	1
Trichloroethene	1.6	U	5.0	1.6	ug/L			12/02/11 19:31	1
Vinyl acetate	0.60	U	10	0.60	ug/L			12/02/11 19:31	1
Vinyl chloride	0.85	U	5.0	0.85	ug/L			12/02/11 19:31	1
o-Xylene	0.93	U	5.0	0.93	ug/L			12/02/11 19:31	1
m-Xylene & p-Xylene	1.3	U	10	1.3	ug/L			12/02/11 19:31	1
Xylenes, Total	2.0	U	5.0	2.0	ug/L			12/02/11 19:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*12/02/11 19:31*	*1*
Dibromofluoromethane	*88*		*62 - 130*		*12/02/11 19:31*	*1*
4-Bromofluorobenzene	*95*		*67 - 139*		*12/02/11 19:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*73*		*50 - 134*		*12/02/11 19:31*	*1*

Client Sample ID: P-9
Date Collected: 11/29/11 13:25
Date Received: 12/01/11 10:17

Lab Sample ID: 600-46769-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.3	U	10	2.3	ug/L			12/02/11 19:56	1
Benzene	0.56	U	5.0	0.56	ug/L			12/02/11 19:56	1
Chlorobromomethane	0.81	U	5.0	0.81	ug/L			12/02/11 19:56	1
Bromoform	0.77	U	5.0	0.77	ug/L			12/02/11 19:56	1
Bromomethane	2.2	U	10	2.2	ug/L			12/02/11 19:56	1
2-Butanone (MEK)	1.6	U	10	1.6	ug/L			12/02/11 19:56	1
Carbon disulfide	1.7	U	10	1.7	ug/L			12/02/11 19:56	1
Carbon tetrachloride	0.92	U	5.0	0.92	ug/L			12/02/11 19:56	1
Dibromochloromethane	0.92	U	5.0	0.92	ug/L			12/02/11 19:56	1
Chlorobenzene	0.82	U	5.0	0.82	ug/L			12/02/11 19:56	1
Chloroethane	1.7	U	10	1.7	ug/L			12/02/11 19:56	1
Chloroform	0.82	U	5.0	0.82	ug/L			12/02/11 19:56	1
Chloromethane	0.85	U	10	0.85	ug/L			12/02/11 19:56	1
1,1-Dichloroethane	**37**		5.0	0.50	ug/L			12/02/11 19:56	1
1,2-Dichloroethane	**16**		5.0	1.0	ug/L			12/02/11 19:56	1
1,1-Dichloroethene	0.76	U	5.0	0.76	ug/L			12/02/11 19:56	1
cis-1,2-Dichloroethene	**2.0**	**J**	5.0	0.56	ug/L			12/02/11 19:56	1
trans-1,2-Dichloroethene	0.88	U	5.0	0.88	ug/L			12/02/11 19:56	1
1,2-Dichloropropane	1.4	U	5.0	1.4	ug/L			12/02/11 19:56	1
cis-1,3-Dichloropropene	0.97	U	5.0	0.97	ug/L			12/02/11 19:56	1
trans-1,3-Dichloropropene	0.59	U	5.0	0.59	ug/L			12/02/11 19:56	1
Ethylbenzene	1.3	U	5.0	1.3	ug/L			12/02/11 19:56	1
2-Hexanone	1.4	U	10	1.4	ug/L			12/02/11 19:56	1
Methylene Chloride	1.4	U	10	1.4	ug/L			12/02/11 19:56	1
4-Methyl-2-pentanone (MIBK)	1.1	U	10	1.1	ug/L			12/02/11 19:56	1
Styrene	0.56	U	5.0	0.56	ug/L			12/02/11 19:56	1
1,1,2,2-Tetrachloroethane	0.80	U	5.0	0.80	ug/L			12/02/11 19:56	1
Tetrachloroethene	1.2	U	5.0	1.2	ug/L			12/02/11 19:56	1
Toluene	0.55	U	5.0	0.55	ug/L			12/02/11 19:56	1
1,1,1-Trichloroethane	0.98	U	5.0	0.98	ug/L			12/02/11 19:56	1
1,1,2-Trichloroethane	0.53	U	5.0	0.53	ug/L			12/02/11 19:56	1
Trichloroethene	**17**		5.0	1.6	ug/L			12/02/11 19:56	1
Vinyl acetate	0.60	U	10	0.60	ug/L			12/02/11 19:56	1
Vinyl chloride	**18**		5.0	0.85	ug/L			12/02/11 19:56	1
o-Xylene	0.93	U	5.0	0.93	ug/L			12/02/11 19:56	1
m-Xylene & p-Xylene	1.3	U	10	1.3	ug/L			12/02/11 19:56	1
Xylenes, Total	2.0	U	5.0	2.0	ug/L			12/02/11 19:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*12/02/11 19:56*	*1*
Dibromofluoromethane	*86*		*62 - 130*		*12/02/11 19:56*	*1*
4-Bromofluorobenzene	*97*		*67 - 139*		*12/02/11 19:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*76*		*50 - 134*		*12/02/11 19:56*	*1*

Client Sample ID: Trip Blank
Date Collected: 11/28/11 00:00
Date Received: 12/01/11 10:17

Lab Sample ID: 600-46769-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.3	U	10	2.3	ug/L			12/02/11 20:22	1
Benzene	0.56	U	5.0	0.56	ug/L			12/02/11 20:22	1
Chlorobromomethane	0.81	U	5.0	0.81	ug/L			12/02/11 20:22	1
Bromoform	0.77	U	5.0	0.77	ug/L			12/02/11 20:22	1
Bromomethane	2.2	U	10	2.2	ug/L			12/02/11 20:22	1
2-Butanone (MEK)	1.6	U	10	1.6	ug/L			12/02/11 20:22	1
Carbon disulfide	1.7	U	10	1.7	ug/L			12/02/11 20:22	1
Carbon tetrachloride	0.92	U	5.0	0.92	ug/L			12/02/11 20:22	1
Dibromochloromethane	0.92	U	5.0	0.92	ug/L			12/02/11 20:22	1
Chlorobenzene	0.82	U	5.0	0.82	ug/L			12/02/11 20:22	1
Chloroethane	1.7	U	10	1.7	ug/L			12/02/11 20:22	1
Chloroform	0.82	U	5.0	0.82	ug/L			12/02/11 20:22	1
Chloromethane	0.85	U	10	0.85	ug/L			12/02/11 20:22	1
1,1-Dichloroethane	0.50	U	5.0	0.50	ug/L			12/02/11 20:22	1
1,2-Dichloroethane	1.0	U	5.0	1.0	ug/L			12/02/11 20:22	1
1,1-Dichloroethene	0.76	U	5.0	0.76	ug/L			12/02/11 20:22	1
cis-1,2-Dichloroethene	0.56	U	5.0	0.56	ug/L			12/02/11 20:22	1
trans-1,2-Dichloroethene	0.88	U	5.0	0.88	ug/L			12/02/11 20:22	1
1,2-Dichloropropane	1.4	U	5.0	1.4	ug/L			12/02/11 20:22	1
cis-1,3-Dichloropropene	0.97	U	5.0	0.97	ug/L			12/02/11 20:22	1
trans-1,3-Dichloropropene	0.59	U	5.0	0.59	ug/L			12/02/11 20:22	1
Ethylbenzene	1.3	U	5.0	1.3	ug/L			12/02/11 20:22	1
2-Hexanone	1.4	U	10	1.4	ug/L			12/02/11 20:22	1
Methylene Chloride	1.4	U	10	1.4	ug/L			12/02/11 20:22	1
4-Methyl-2-pentanone (MIBK)	1.1	U	10	1.1	ug/L			12/02/11 20:22	1
Styrene	0.56	U	5.0	0.56	ug/L			12/02/11 20:22	1
1,1,2,2-Tetrachloroethane	0.80	U	5.0	0.80	ug/L			12/02/11 20:22	1
Tetrachloroethene	1.2	U	5.0	1.2	ug/L			12/02/11 20:22	1
Toluene	0.55	U	5.0	0.55	ug/L			12/02/11 20:22	1
1,1,1-Trichloroethane	0.98	U	5.0	0.98	ug/L			12/02/11 20:22	1
1,1,2-Trichloroethane	0.53	U	5.0	0.53	ug/L			12/02/11 20:22	1
Trichloroethene	1.6	U	5.0	1.6	ug/L			12/02/11 20:22	1
Vinyl acetate	0.60	U	10	0.60	ug/L			12/02/11 20:22	1
Vinyl chloride	0.85	U	5.0	0.85	ug/L			12/02/11 20:22	1
o-Xylene	0.93	U	5.0	0.93	ug/L			12/02/11 20:22	1
m-Xylene & p-Xylene	1.3	U	10	1.3	ug/L			12/02/11 20:22	1
Xylenes, Total	2.0	U	5.0	2.0	ug/L			12/02/11 20:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*12/02/11 20:22*	*1*
Dibromofluoromethane	*91*		*62 - 130*		*12/02/11 20:22*	*1*
4-Bromofluorobenzene	*100*		*67 - 139*		*12/02/11 20:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*77*		*50 - 134*		*12/02/11 20:22*	*1*

Surrogate Summary

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DBFM	BFB	12DCE
Lab Sample ID	Client Sample ID	(70-130)	(62-130)	(67-139)	(50-134)
600-46769-1	D-33	98	83	94	79
600-46769-2	P-55	98	88	95	73
600-46769-3	P-9	96	86	97	76
600-46769-4	Trip Blank	100	91	100	77
LCS 600-67522/4	Lab Control Sample	113	99	109	88
MB 600-67522/7	Method Blank	100	90	93	73

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane
BFB = 4-Bromofluorobenzene
12DCE = 1,2-Dichloroethane-d4 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 600-67522/7
Matrix: Water
Analysis Batch: 67522

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.3	U	10	2.3	ug/L			12/02/11 14:43	1
Benzene	0.56	U	5.0	0.56	ug/L			12/02/11 14:43	1
Chlorobromomethane	0.81	U	5.0	0.81	ug/L			12/02/11 14:43	1
Bromoform	0.77	U	5.0	0.77	ug/L			12/02/11 14:43	1
Bromomethane	2.2	U	10	2.2	ug/L			12/02/11 14:43	1
2-Butanone (MEK)	1.6	U	10	1.6	ug/L			12/02/11 14:43	1
Carbon disulfide	1.7	U	10	1.7	ug/L			12/02/11 14:43	1
Carbon tetrachloride	0.92	U	5.0	0.92	ug/L			12/02/11 14:43	1
Dibromochloromethane	0.92	U	5.0	0.92	ug/L			12/02/11 14:43	1
Chlorobenzene	0.82	U	5.0	0.82	ug/L			12/02/11 14:43	1
Chloroethane	1.7	U	10	1.7	ug/L			12/02/11 14:43	1
Chloroform	0.82	U	5.0	0.82	ug/L			12/02/11 14:43	1
Chloromethane	0.85	U	10	0.85	ug/L			12/02/11 14:43	1
1,1-Dichloroethane	0.50	U	5.0	0.50	ug/L			12/02/11 14:43	1
1,2-Dichloroethane	1.0	U	5.0	1.0	ug/L			12/02/11 14:43	1
1,1-Dichloroethene	0.76	U	5.0	0.76	ug/L			12/02/11 14:43	1
cis-1,2-Dichloroethene	0.56	U	5.0	0.56	ug/L			12/02/11 14:43	1
trans-1,2-Dichloroethene	0.88	U	5.0	0.88	ug/L			12/02/11 14:43	1
1,2-Dichloropropane	1.4	U	5.0	1.4	ug/L			12/02/11 14:43	1
cis-1,3-Dichloropropene	0.97	U	5.0	0.97	ug/L			12/02/11 14:43	1
trans-1,3-Dichloropropene	0.59	U	5.0	0.59	ug/L			12/02/11 14:43	1
Ethylbenzene	1.3	U	5.0	1.3	ug/L			12/02/11 14:43	1
2-Hexanone	1.4	U	10	1.4	ug/L			12/02/11 14:43	1
Methylene Chloride	1.76	J	10	1.4	ug/L			12/02/11 14:43	1
4-Methyl-2-pentanone (MIBK)	1.1	U	10	1.1	ug/L			12/02/11 14:43	1
Styrene	0.56	U	5.0	0.56	ug/L			12/02/11 14:43	1
1,1,2,2-Tetrachloroethane	0.80	U	5.0	0.80	ug/L			12/02/11 14:43	1
Tetrachloroethene	1.2	U	5.0	1.2	ug/L			12/02/11 14:43	1
Toluene	0.55	U	5.0	0.55	ug/L			12/02/11 14:43	1
1,1,1-Trichloroethane	0.98	U	5.0	0.98	ug/L			12/02/11 14:43	1
1,1,2-Trichloroethane	0.53	U	5.0	0.53	ug/L			12/02/11 14:43	1
Trichloroethene	1.6	U	5.0	1.6	ug/L			12/02/11 14:43	1
Vinyl acetate	0.60	U	10	0.60	ug/L			12/02/11 14:43	1
Vinyl chloride	0.85	U	5.0	0.85	ug/L			12/02/11 14:43	1
o-Xylene	0.93	U	5.0	0.93	ug/L			12/02/11 14:43	1
m-Xylene & p-Xylene	1.3	U	10	1.3	ug/L			12/02/11 14:43	1
Xylenes, Total	2.0	U	5.0	2.0	ug/L			12/02/11 14:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*12/02/11 14:43*	*1*
Dibromofluoromethane	*90*		*62 - 130*		*12/02/11 14:43*	*1*
4-Bromofluorobenzene	*93*		*67 - 139*		*12/02/11 14:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*73*		*50 - 134*		*12/02/11 14:43*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 600-67522/4
Matrix: Water
Analysis Batch: 67522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	100	95.9		ug/L		96	28 - 152
Benzene	50.0	52.7		ug/L		105	69 - 131
Chlorobromomethane	50.0	58.5		ug/L		117	60 - 141
Bromoform	50.0	56.6		ug/L		113	39 - 149
Bromomethane	50.0	46.2		ug/L		92	52 - 146
2-Butanone (MEK)	100	89.8		ug/L		90	59 - 133
Carbon disulfide	50.0	55.1		ug/L		110	32 - 177
Carbon tetrachloride	50.0	59.0		ug/L		118	59 - 147
Dibromochloromethane	50.0	62.3		ug/L		125	58 - 132
Chlorobenzene	50.0	62.4		ug/L		125	60 - 136
Chloroethane	50.0	41.4		ug/L		83	56 - 144
Chloroform	50.0	55.0		ug/L		110	69 - 128
Chloromethane	50.0	45.8		ug/L		92	32 - 151
1,1-Dichloroethane	50.0	55.3		ug/L		111	66 - 126
1,2-Dichloroethane	50.0	56.7		ug/L		113	66 - 140
1,1-Dichloroethene	50.0	61.5		ug/L		123	59 - 145
cis-1,2-Dichloroethene	50.0	53.6		ug/L		107	69 - 129
trans-1,2-Dichloroethene	50.0	57.2		ug/L		114	70 - 132
1,2-Dichloropropane	50.0	54.5		ug/L		109	72 - 135
cis-1,3-Dichloropropene	50.0	53.5		ug/L		107	60 - 135
trans-1,3-Dichloropropene	50.0	57.7		ug/L		115	63 - 133
Ethylbenzene	50.0	61.1		ug/L		122	68 - 128
2-Hexanone	100	76.7		ug/L		77	51 - 130
Methylene Chloride	50.0	55.2		ug/L		110	62 - 134
4-Methyl-2-pentanone (MIBK)	100	98.8		ug/L		99	56 - 142
Styrene	50.0	57.2		ug/L		114	68 - 133
1,1,2,2-Tetrachloroethane	50.0	44.7		ug/L		89	68 - 134
Tetrachloroethene	50.0	64.6		ug/L		129	61 - 142
Toluene	50.0	57.7		ug/L		115	67 - 130
1,1,1-Trichloroethane	50.0	56.5		ug/L		113	65 - 142
1,1,2-Trichloroethane	50.0	56.0		ug/L		112	68 - 130
Trichloroethene	50.0	63.8		ug/L		128	68 - 130
Vinyl acetate	50.0	50.8		ug/L		102	58 - 175
Vinyl chloride	50.0	43.2		ug/L		86	47 - 146
o-Xylene	50.0	60.9		ug/L		122	68 - 134
m-Xylene & p-Xylene	100	123		ug/L		123	67 - 132
Xylenes, Total	150	184		ug/L		123	68 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*113*		*70 - 130*
Dibromofluoromethane	*99*		*62 - 130*
4-Bromofluorobenzene	*109*		*67 - 139*
1,2-Dichloroethane-d4 (Surr)	*88*		*50 - 134*

QC Association Summary

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

GC/MS VOA

Analysis Batch: 67522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-46769-1	D-33	Total/NA	Water	8260B	
600-46769-2	P-55	Total/NA	Water	8260B	
600-46769-3	P-9	Total/NA	Water	8260B	
600-46769-4	Trip Blank	Total/NA	Water	8260B	
LCS 600-67522/4	Lab Control Sample	Total/NA	Water	8260B	
MB 600-67522/7	Method Blank	Total/NA	Water	8260B	

Lab Chronicle

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

Client Sample ID: D-33

Lab Sample ID: 600-46769-1

Date Collected: 11/28/11 14:14
Matrix: Water
Date Received: 12/01/11 10:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	67522	12/02/11 19:06	KLV	TAL HOU

Client Sample ID: P-55

Lab Sample ID: 600-46769-2

Date Collected: 11/29/11 11:35
Matrix: Water
Date Received: 12/01/11 10:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	67522	12/02/11 19:31	KLV	TAL HOU

Client Sample ID: P-9

Lab Sample ID: 600-46769-3

Date Collected: 11/29/11 13:25
Matrix: Water
Date Received: 12/01/11 10:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	67522	12/02/11 19:56	KLV	TAL HOU

Client Sample ID: Trip Blank

Lab Sample ID: 600-46769-4

Date Collected: 11/28/11 00:00
Matrix: Water
Date Received: 12/01/11 10:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	67522	12/02/11 20:22	KLV	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Certification Summary

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Houston	Arkansas	State Program	6	88-0759
TestAmerica Houston	Louisiana	NELAC	6	30643
TestAmerica Houston	Oklahoma	State Program	6	9503
TestAmerica Houston	Texas	NELAC	6	T104704223-10-6-TX
TestAmerica Houston	USDA	USDA		P330-08-00217
TestAmerica Houston	Utah	NELAC	8	GULF

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method Summary

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL HOU

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: Tetra Tech MM Inc
Project/Site: Formosa Point Comfort

TestAmerica Job ID: 600-46769-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-46769-1	D-33	Water	11/28/11 14:14	12/01/11 10:17
600-46769-2	P-55	Water	11/29/11 11:35	12/01/11 10:17
600-46769-3	P-9	Water	11/29/11 13:25	12/01/11 10:17
600-46769-4	Trip Blank	Water	11/28/11 00:00	12/01/11 10:17

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☑

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Loc: 600
46769

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
TETRA TECH, INC.	ERIC KLINK	11/30/2011	204838

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page
7800 SHOAL CREEK BLVD STE 253E	(512) 338-1667 / (512) 338-1331		Page 1 of 1

City	State	Zip Code	Site Contact	Lab Contact
AUSTIN	TX	78757		S. KUDCHADKAR

Project Name and Location (State)	Carrier/Waybill Number
~~FORMS~~ FORMOSA POINT COMFORT	FED EX 8689 3571 0648

Contract/Purchase Order/Quote No.
114-021356

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: 8260B (MOD)	Special Instructions/ Conditions of Receipt
D-33	11/28/11	1414		X						4			X	TARGET COMPOUND LIST ON all Samples
P-55	11/29/11	1135		X						4			X	
P-9	11/29/11	1325		X						4			X	
TRIP BLANKS	LAB SUPPLIED	LAB SUPPLIED		X						2			X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other PER CONTRACT

QC Requirements (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
	1715	11/30/11			
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time
				12/01/11	1017

Comments

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample: PINK - Field Copy

12/7/2011

Login Sample Receipt Checklist

Client: Tetra Tech MM Inc

Job Number: 600-46769-1

Login Number: 46769
List Number: 1
Creator: Fuentes Jr, Fabio

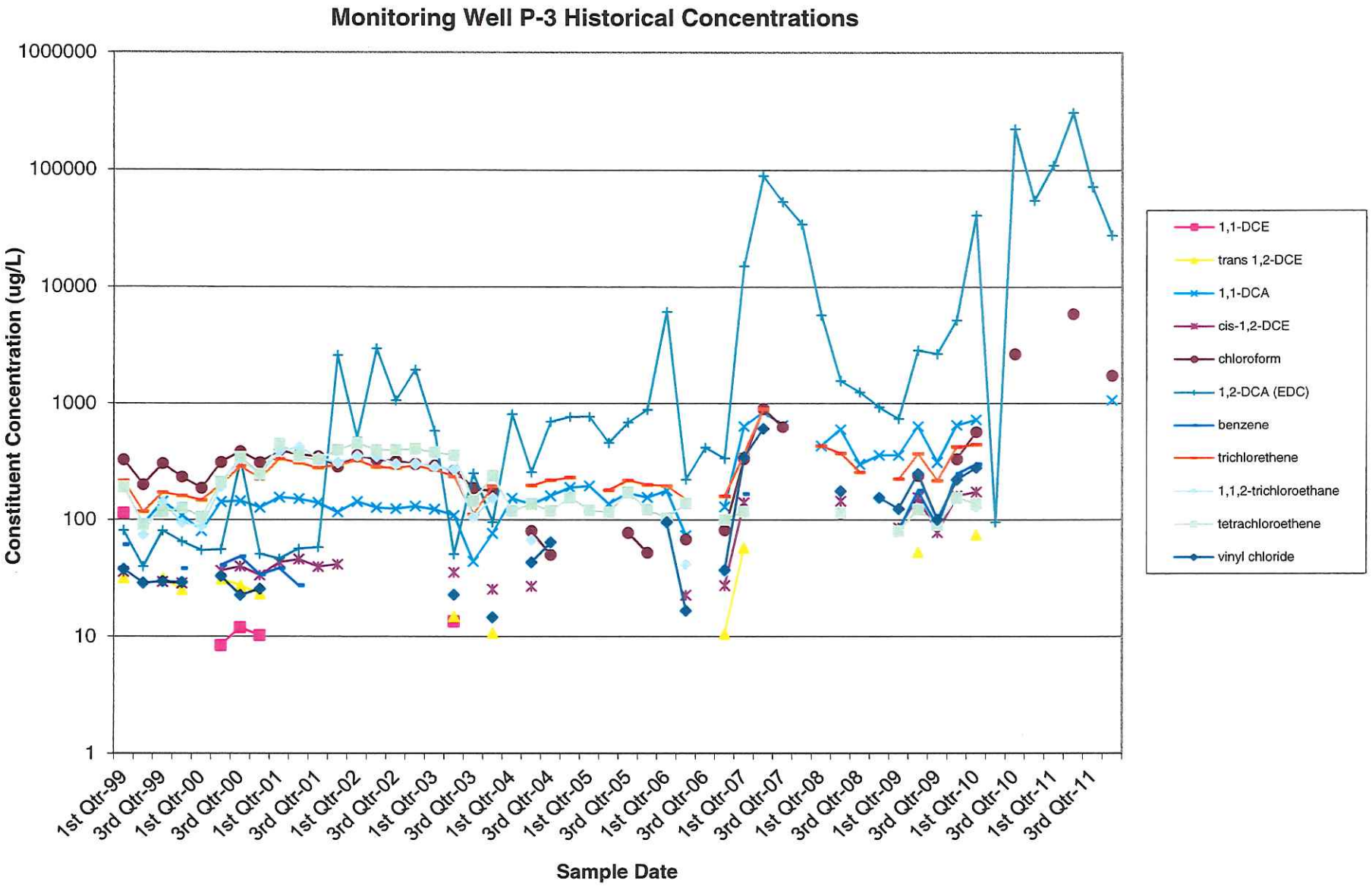
List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

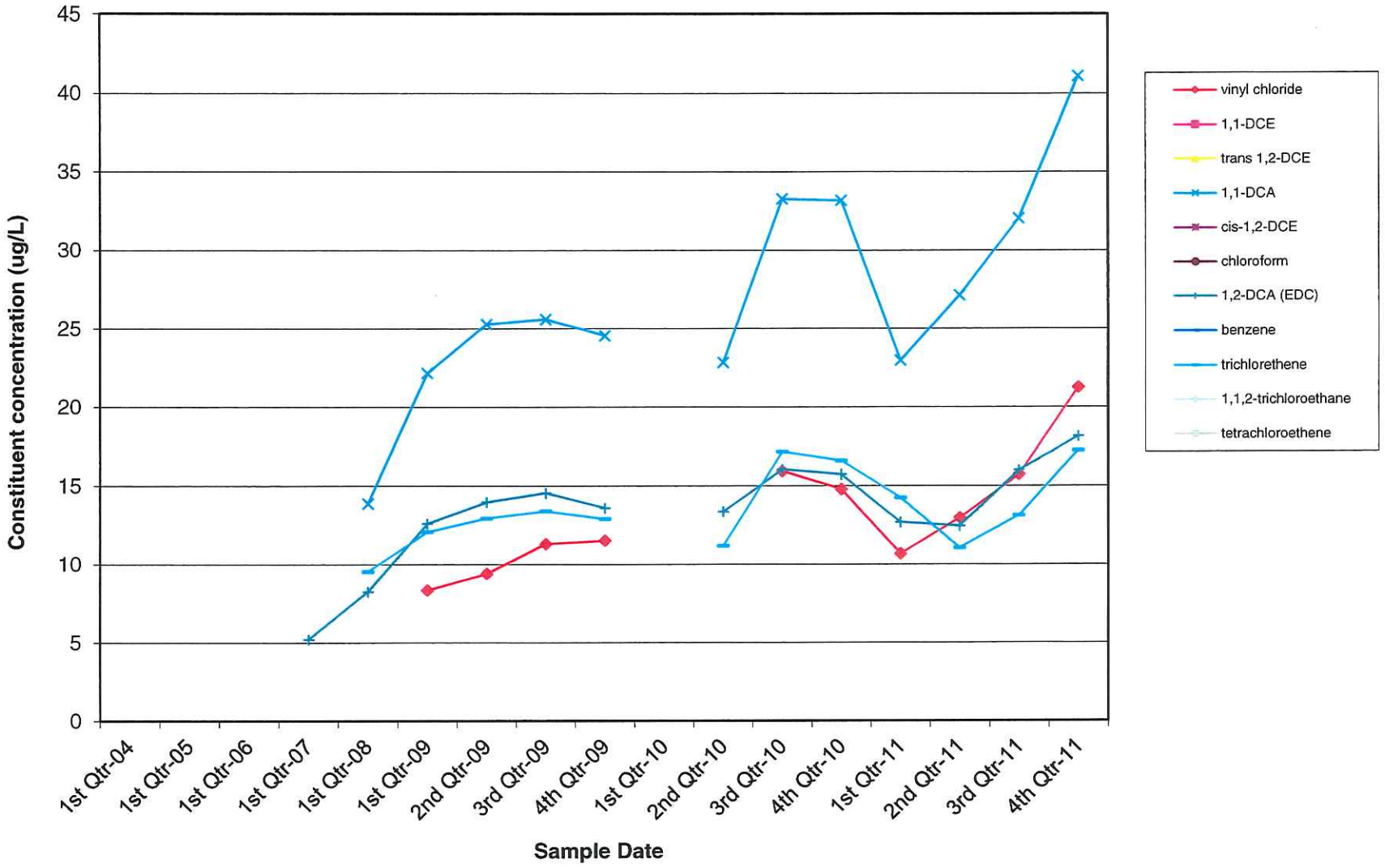
APPENDIX I
GRAPHS OF HISTORICAL CONCENTRATIONS IN WELLS

ZONE A WELL GRAPHS

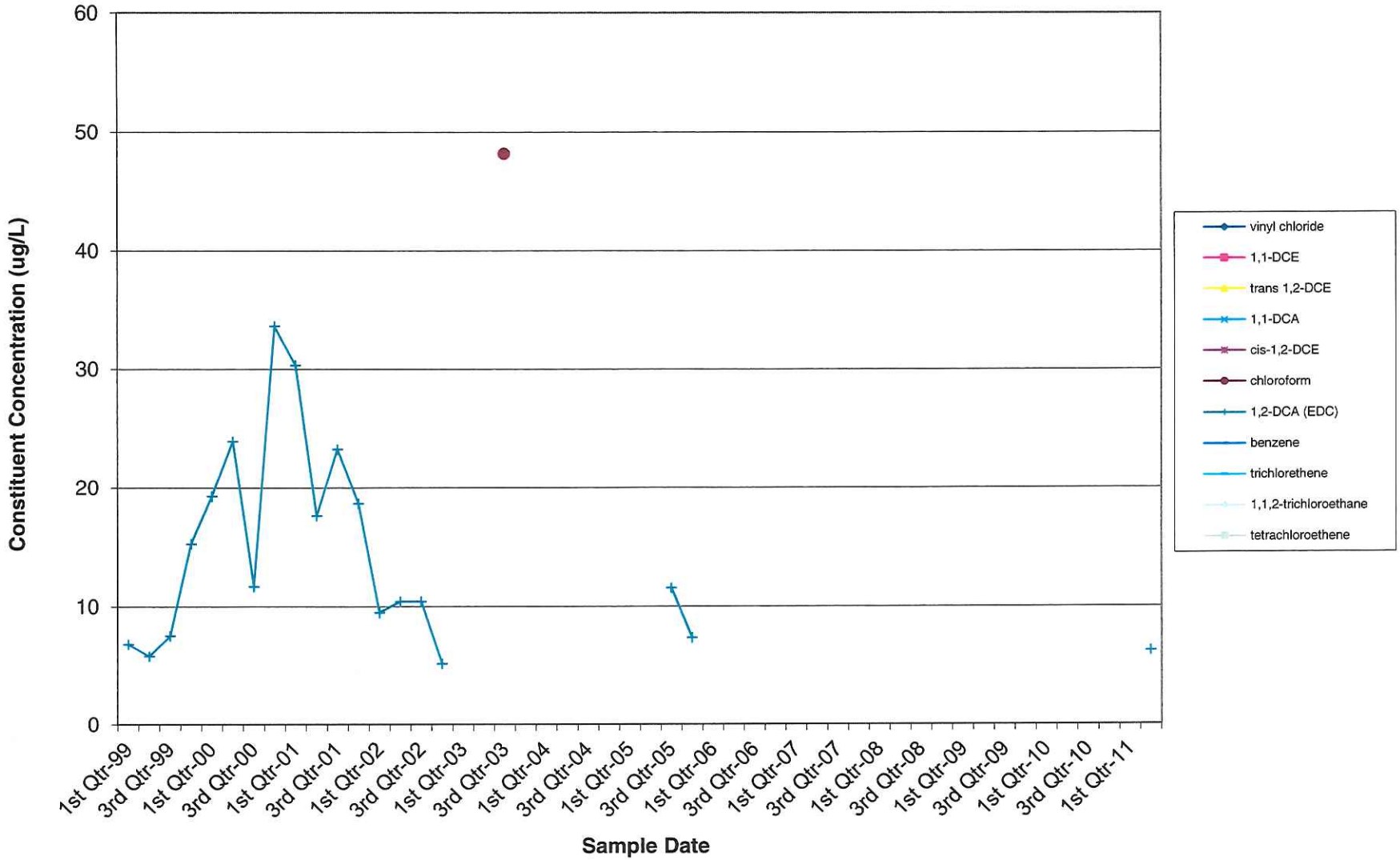
- P-3
- P-9
- P-15
- P-18
- P-56
- P-57
- RS-1
- RS-4
- RS-5


Monitoring Well P-3 Historical Concentrations
Constituent Concentration (ug/L)
1000000
100000
10000
1000
100
10
1
1st Qtr-99
3rd Qtr-99
1st Qtr-00
3rd Qtr-00
1st Qtr-01
3rd Qtr-01
1st Qtr-02
3rd Qtr-02
1st Qtr-03
3rd Qtr-03
1st Qtr-04
3rd Qtr-04
1st Qtr-05
3rd Qtr-05
1st Qtr-06
3rd Qtr-06
1st Qtr-07
3rd Qtr-07
1st Qtr-08
3rd Qtr-08
1st Qtr-09
3rd Qtr-09
1st Qtr-10
3rd Qtr-10
1st Qtr-11
3rd Qtr-11
Sample Date
1,1-DCE
trans 1,2-DCE
1,1-DCA
cis-1,2-DCE
chloroform
1,2-DCA (EDC)
benzene
trichlorethene
1,1,2-trichloroethane
tetrachloroethene
vinyl chloride

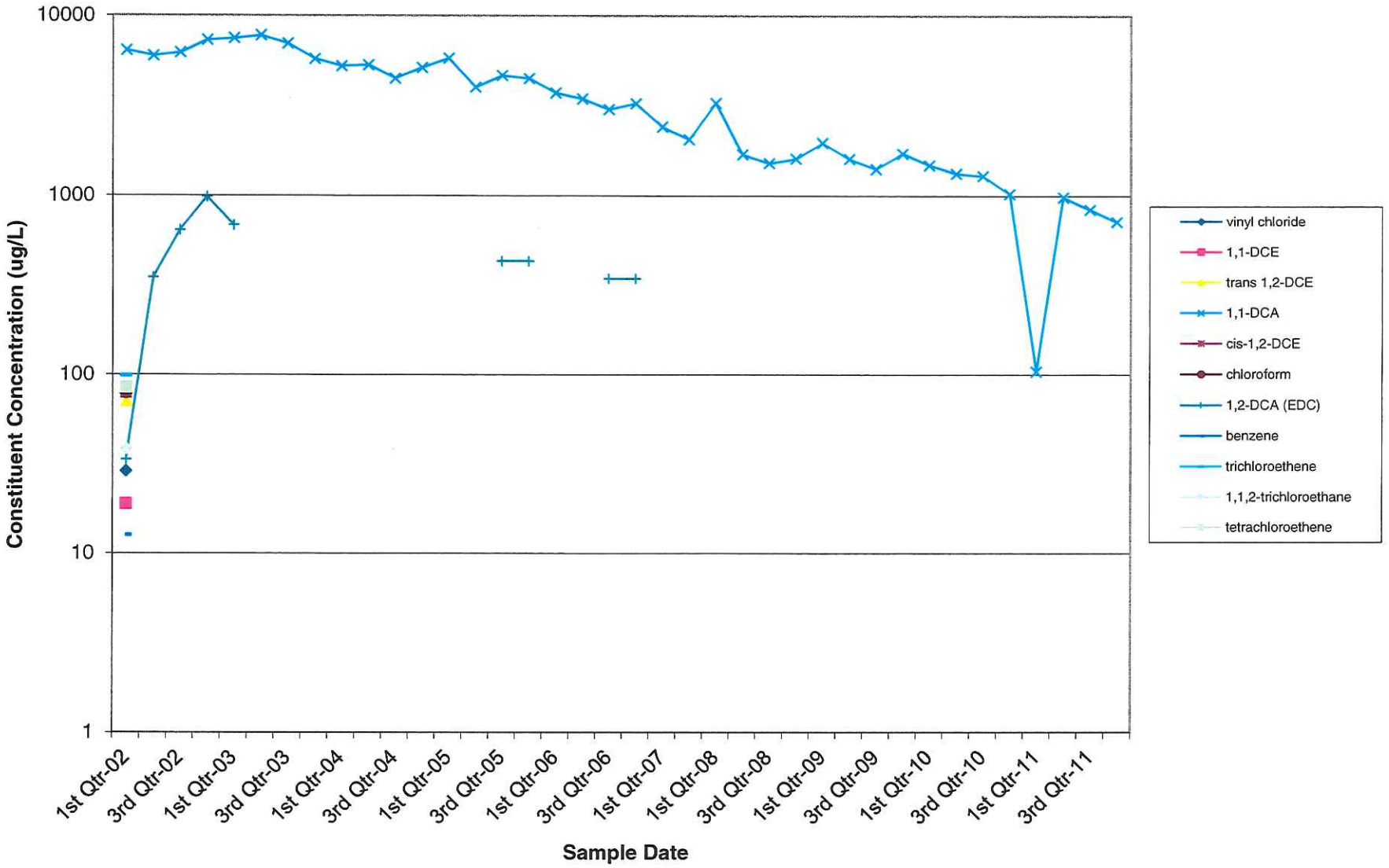
Monitoring Well P-9 Historical Concentration



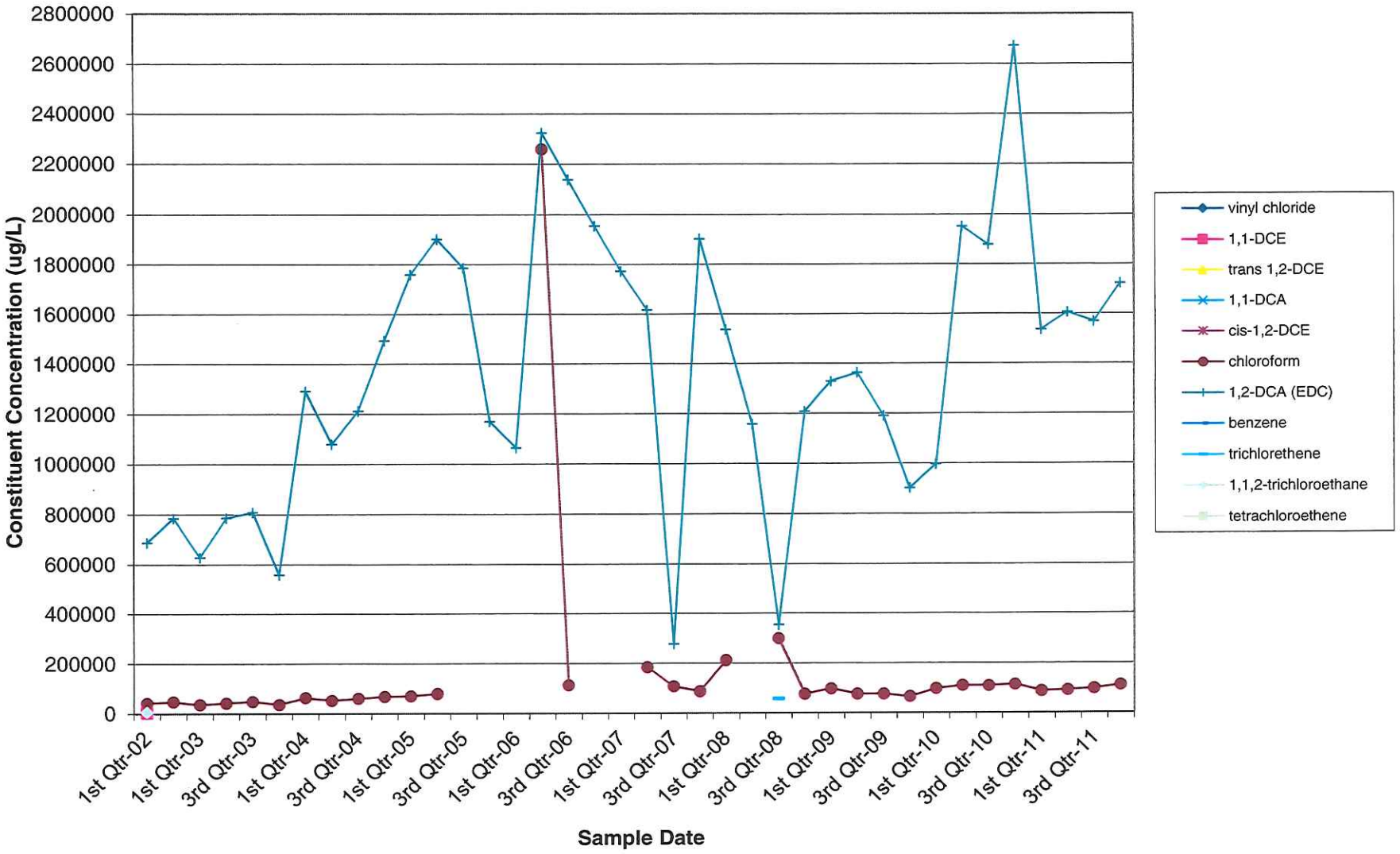
Monitoring Well P-15 Historical Concentrations



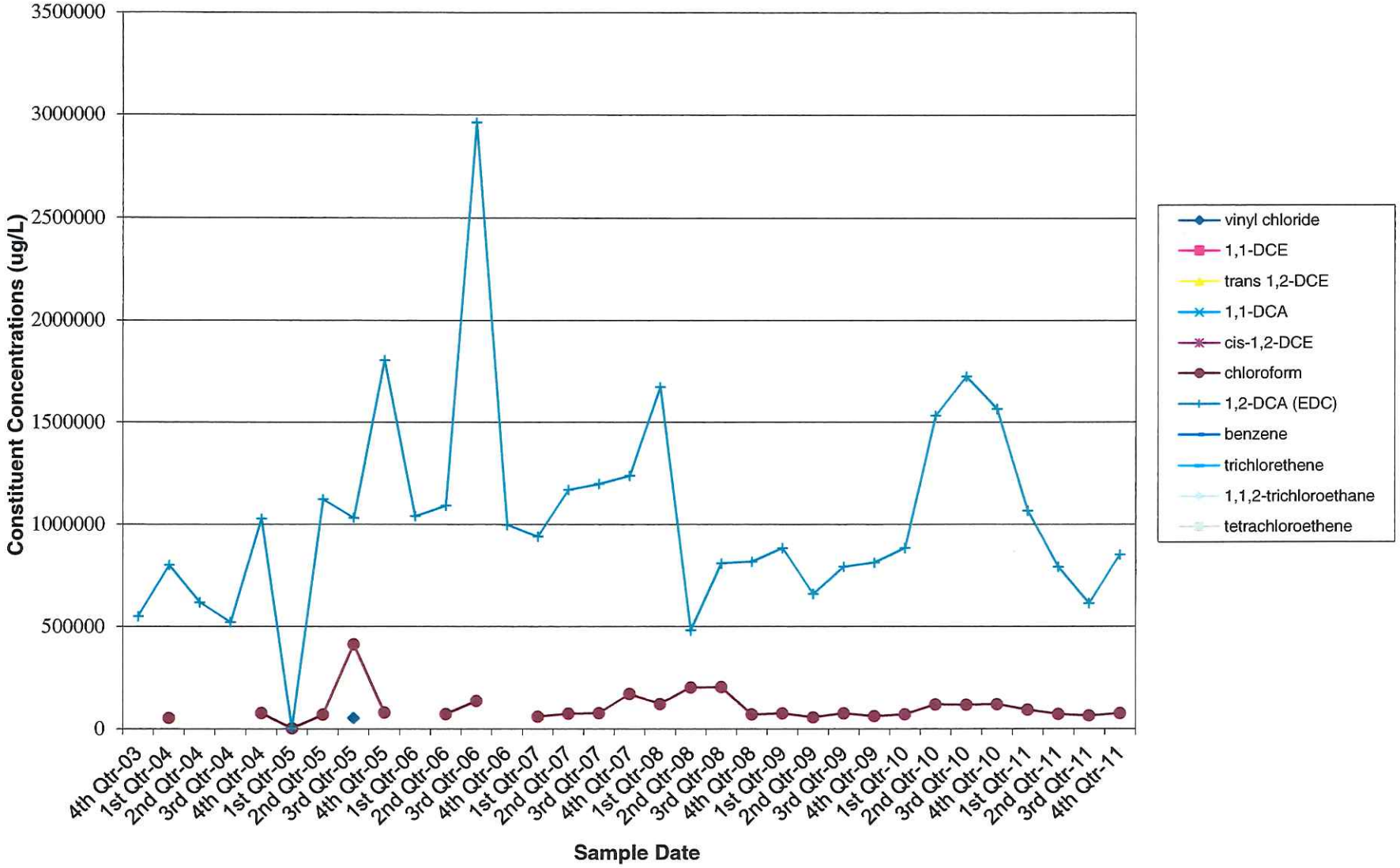
Monitoring Well P-18 Historical Concentrations



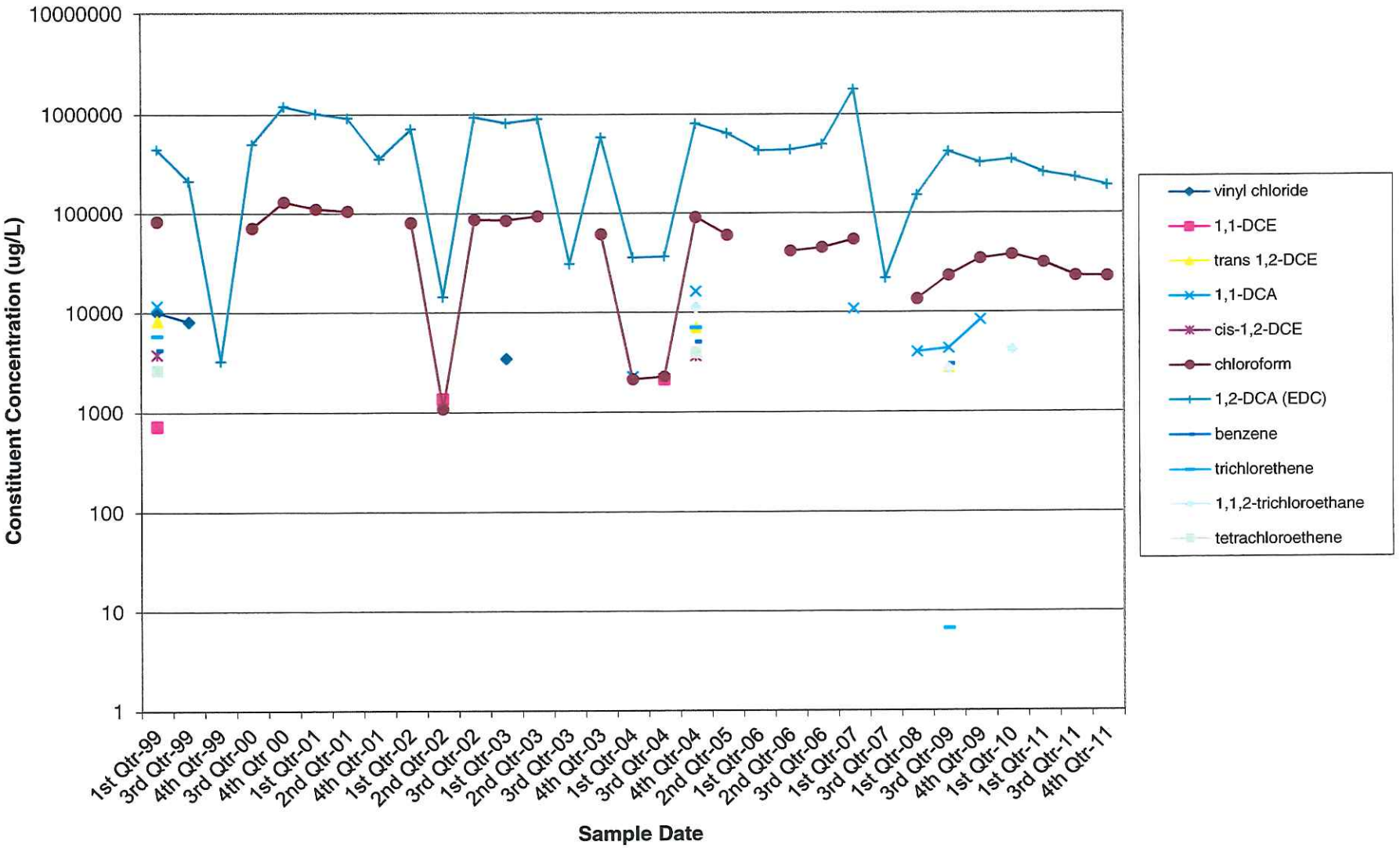
Monitoring Well P-56 Historical Concentrations



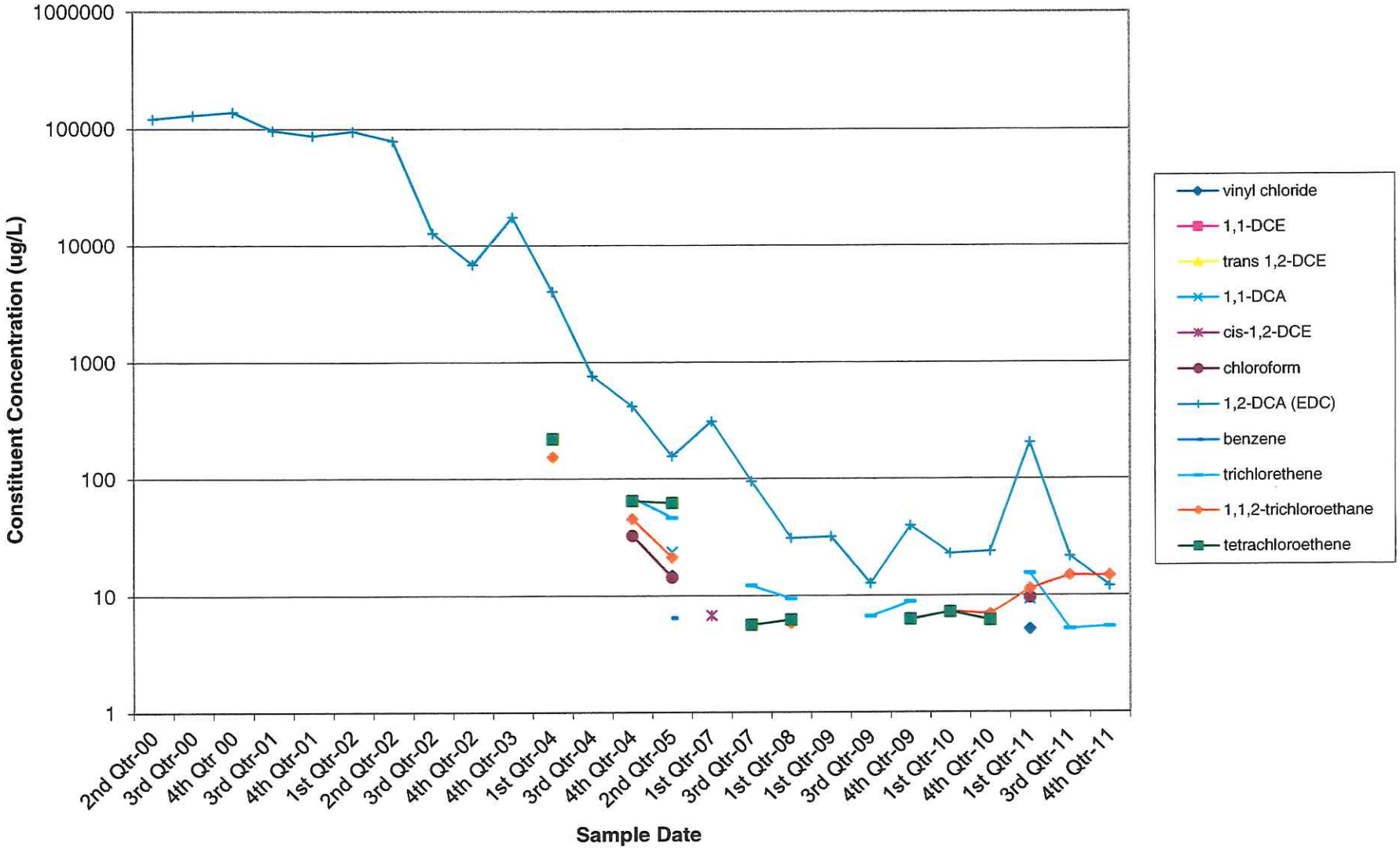
Monitoring Well P-57 Historical Concentrations



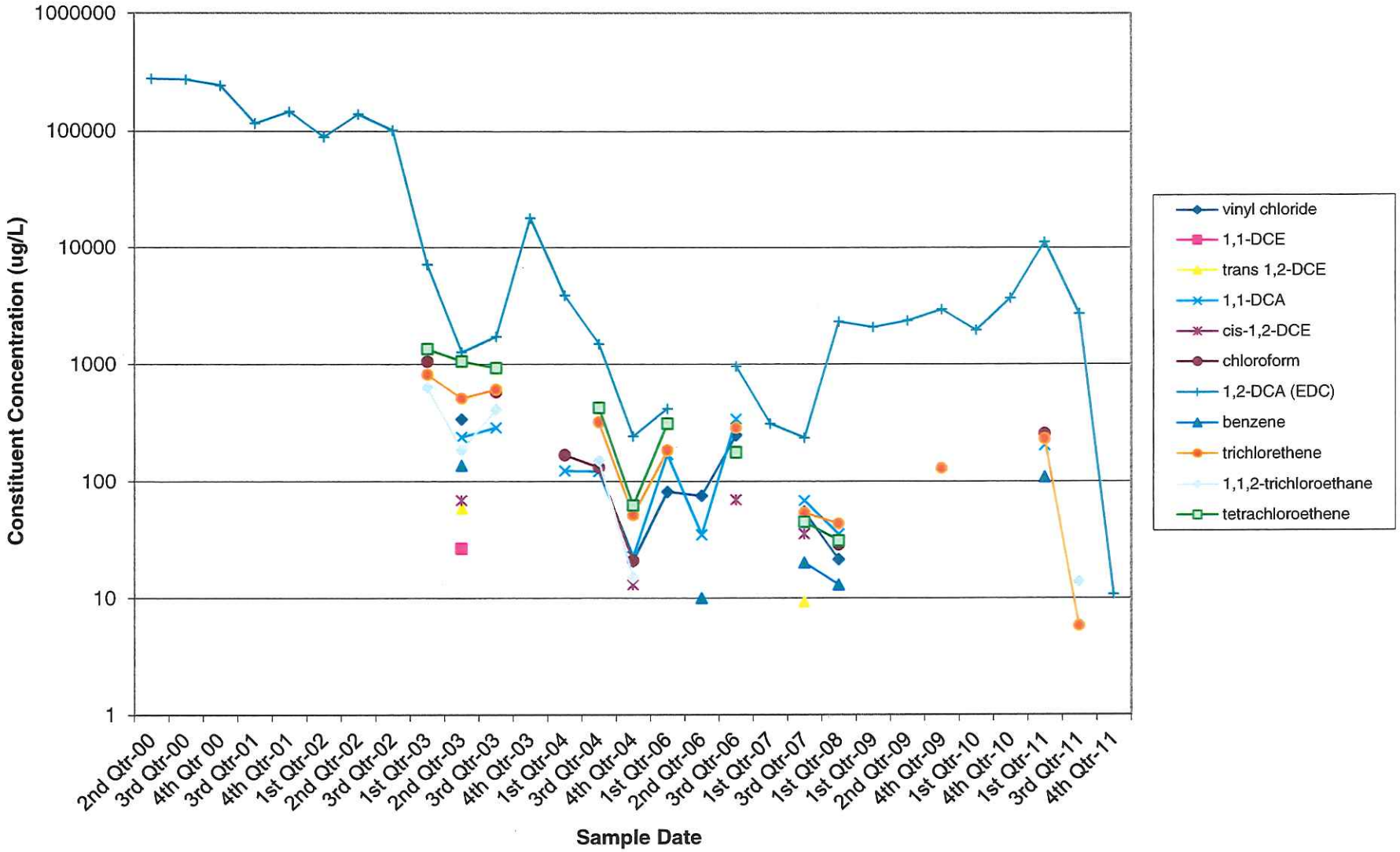
Recovery Well RS-1 Historical Concentrations



Recovery Well RS-4 Historical Concentrations



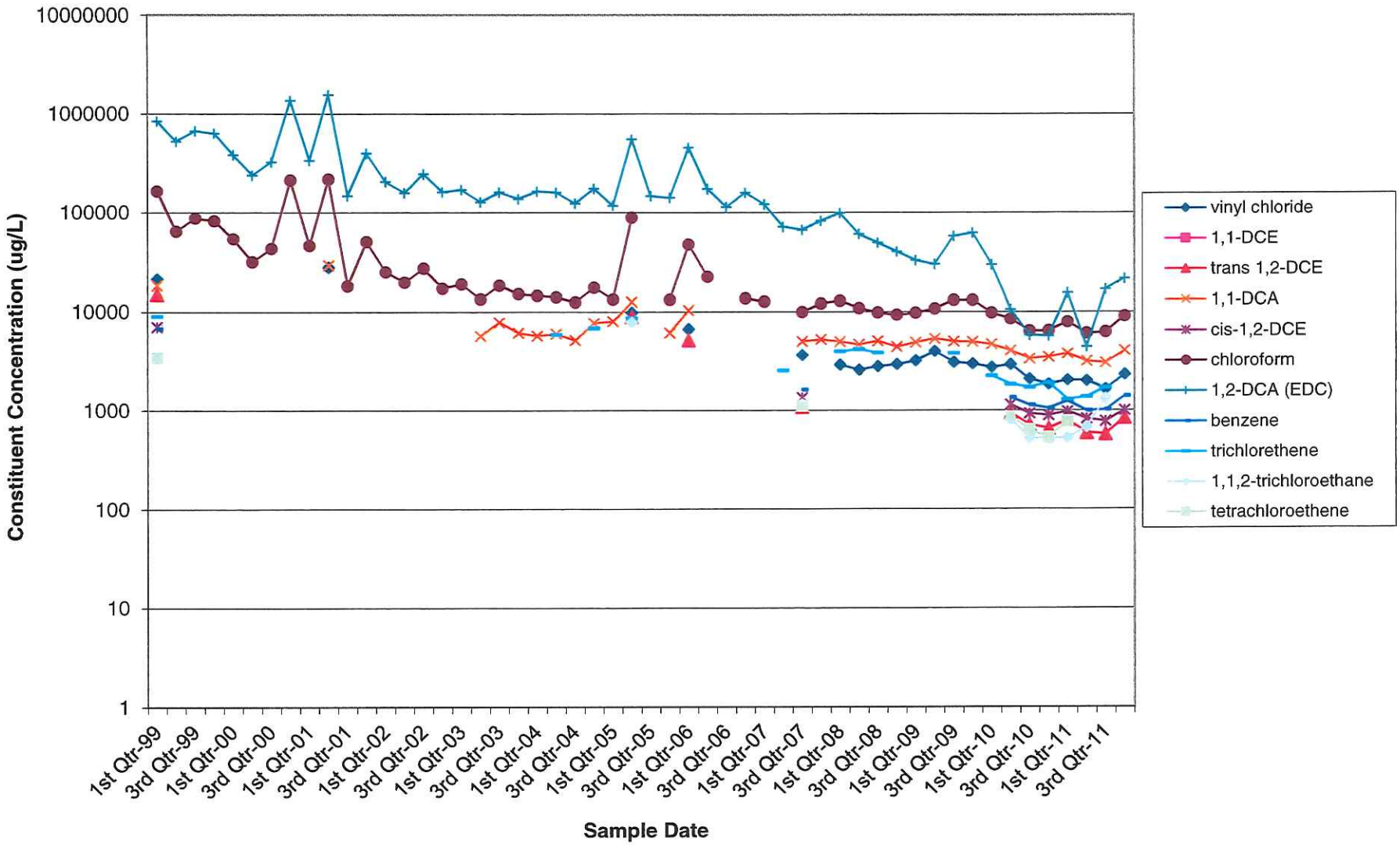
Recovery Well RS-5 Historical Concentrations



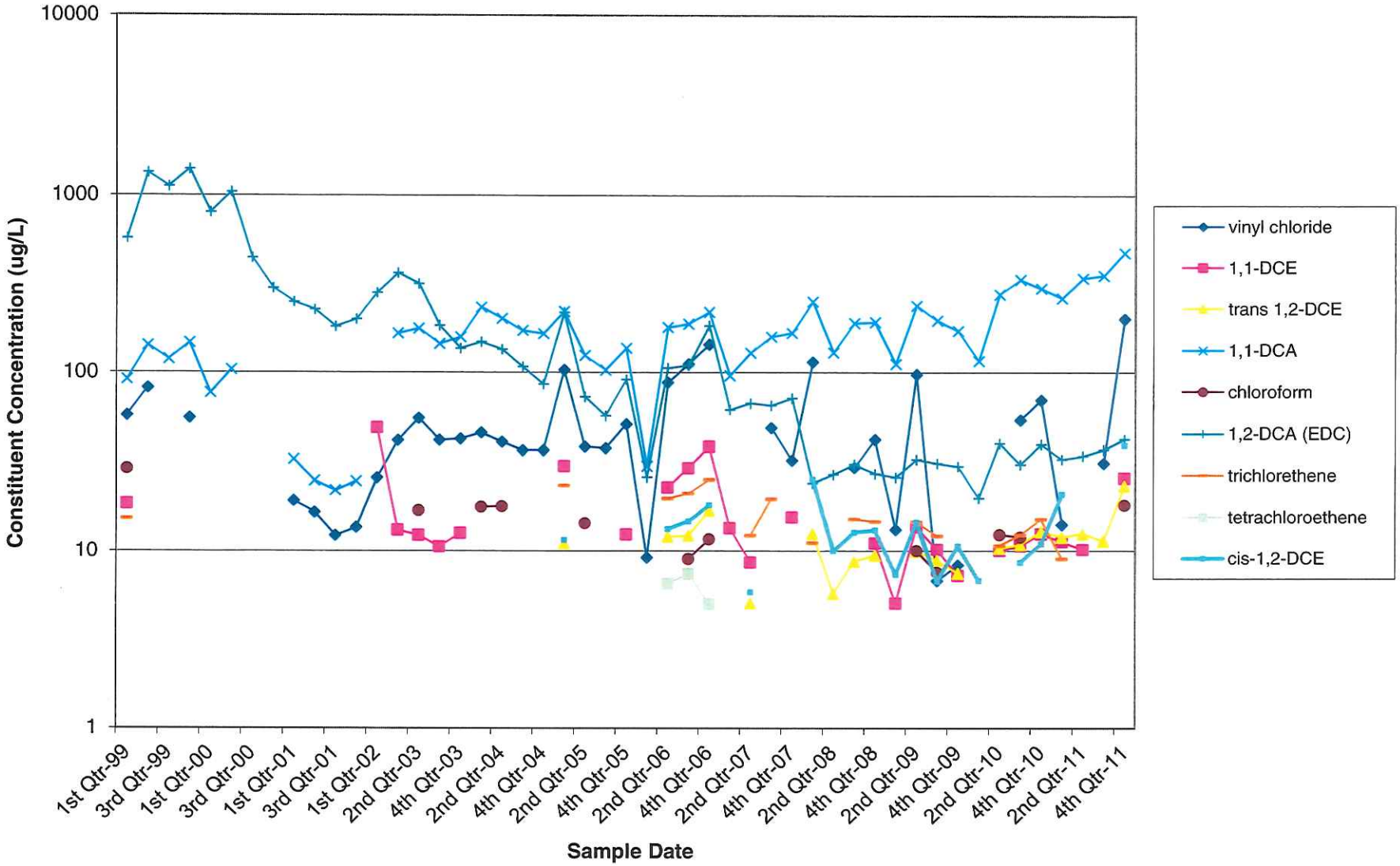
ZONE B WELL GRAPHS

- P-12
- D-32
- D-33

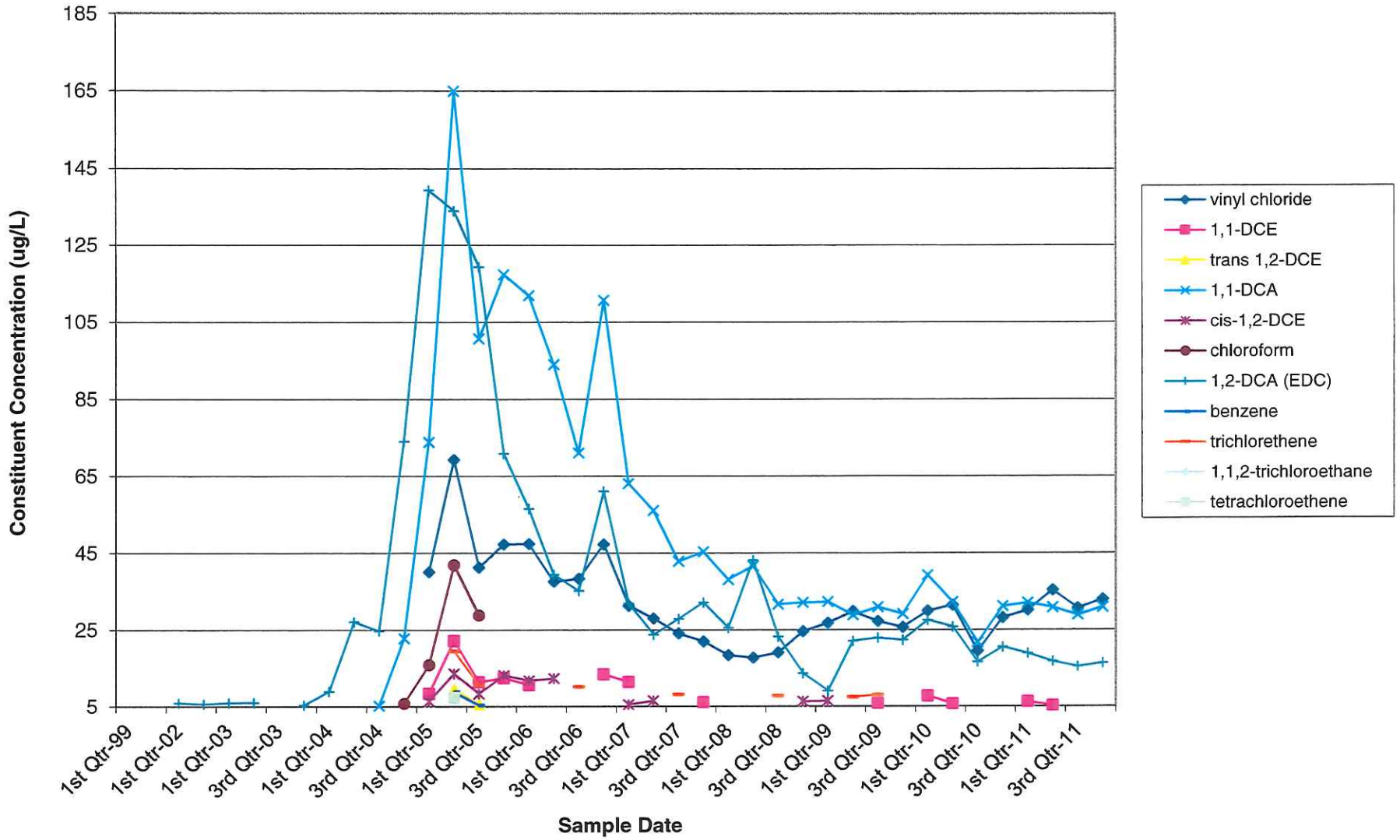
Monitoring Well P-12 Historical Concentrations



Monitoring Well D-32 Historical Concentrations



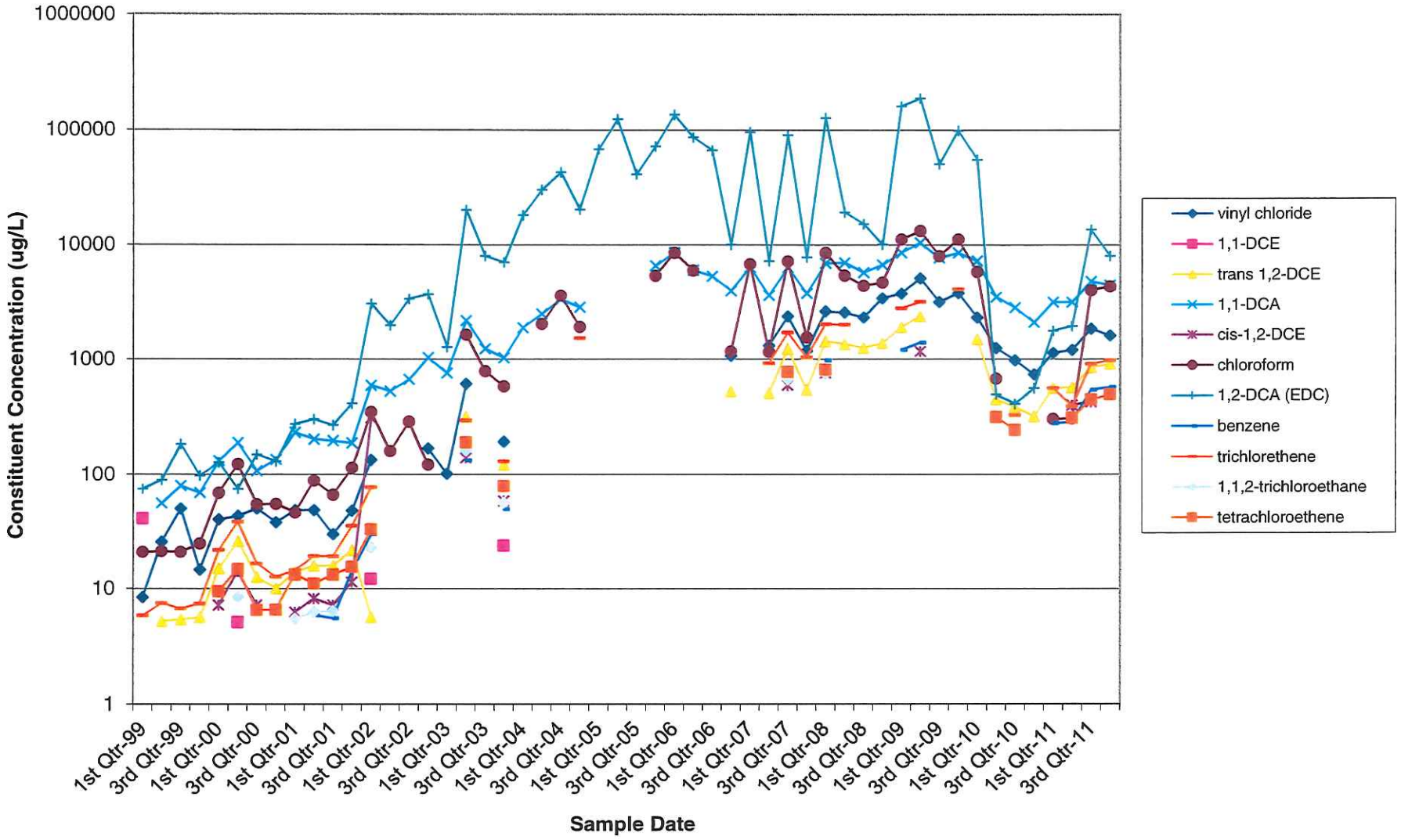
Monitoring Well D-33 Historical Concentrations



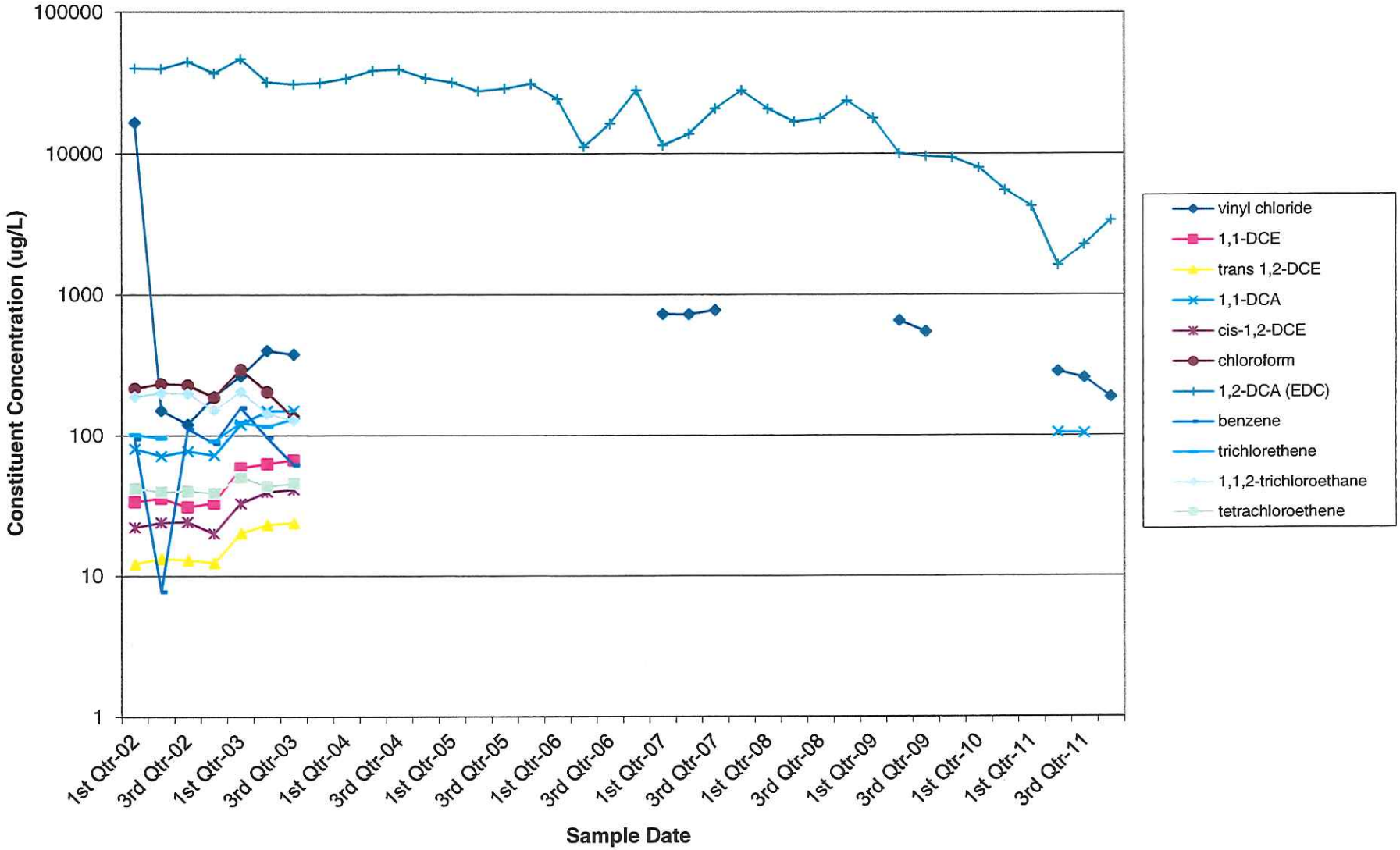
ZONE C WELL GRAPHS

- D-2
- D-12
- D-13
- D-14
- D-16
- D-34
- D-39
- D-41
- RD-1

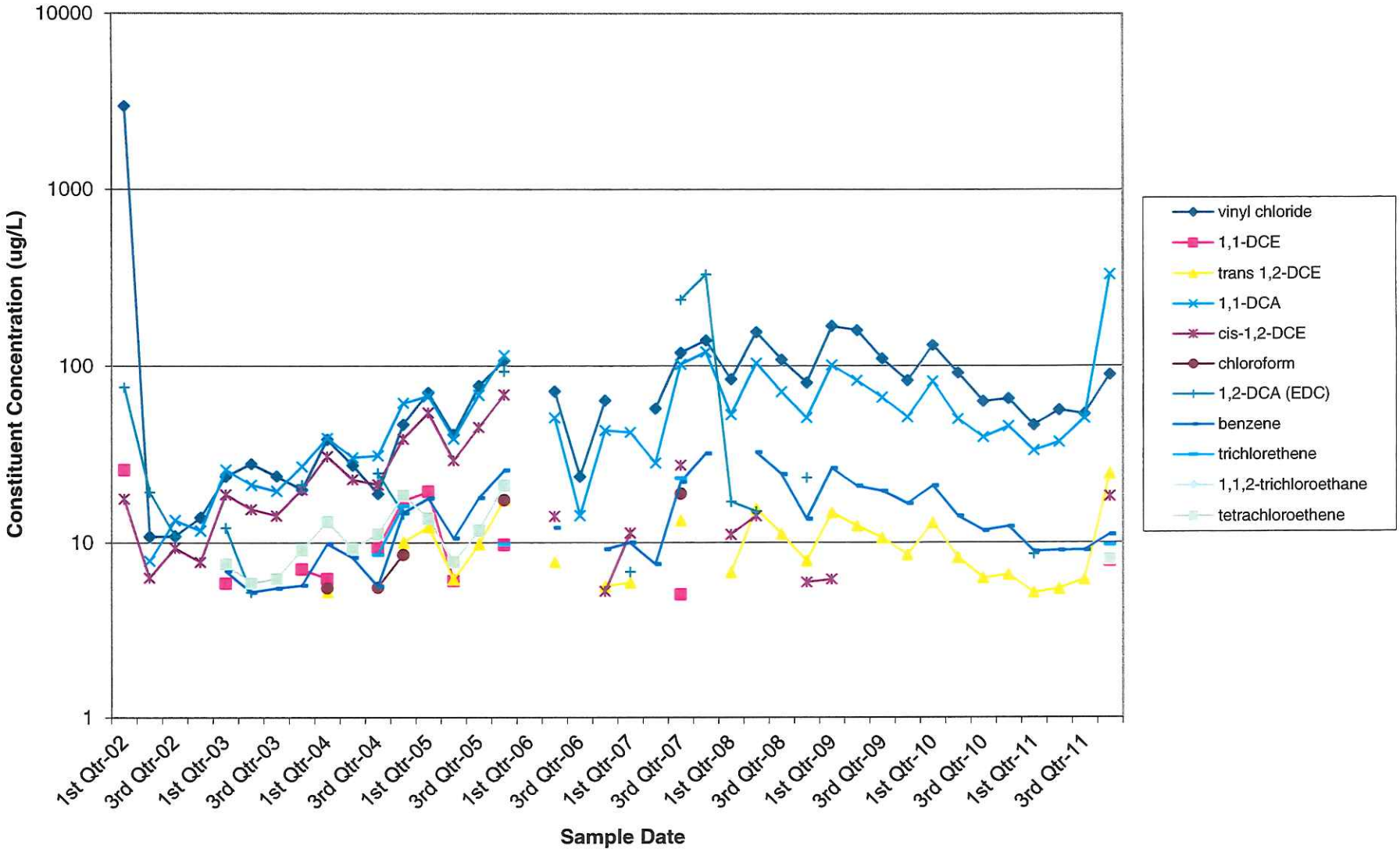
Monitoring Well D-2 Historical Concentrations



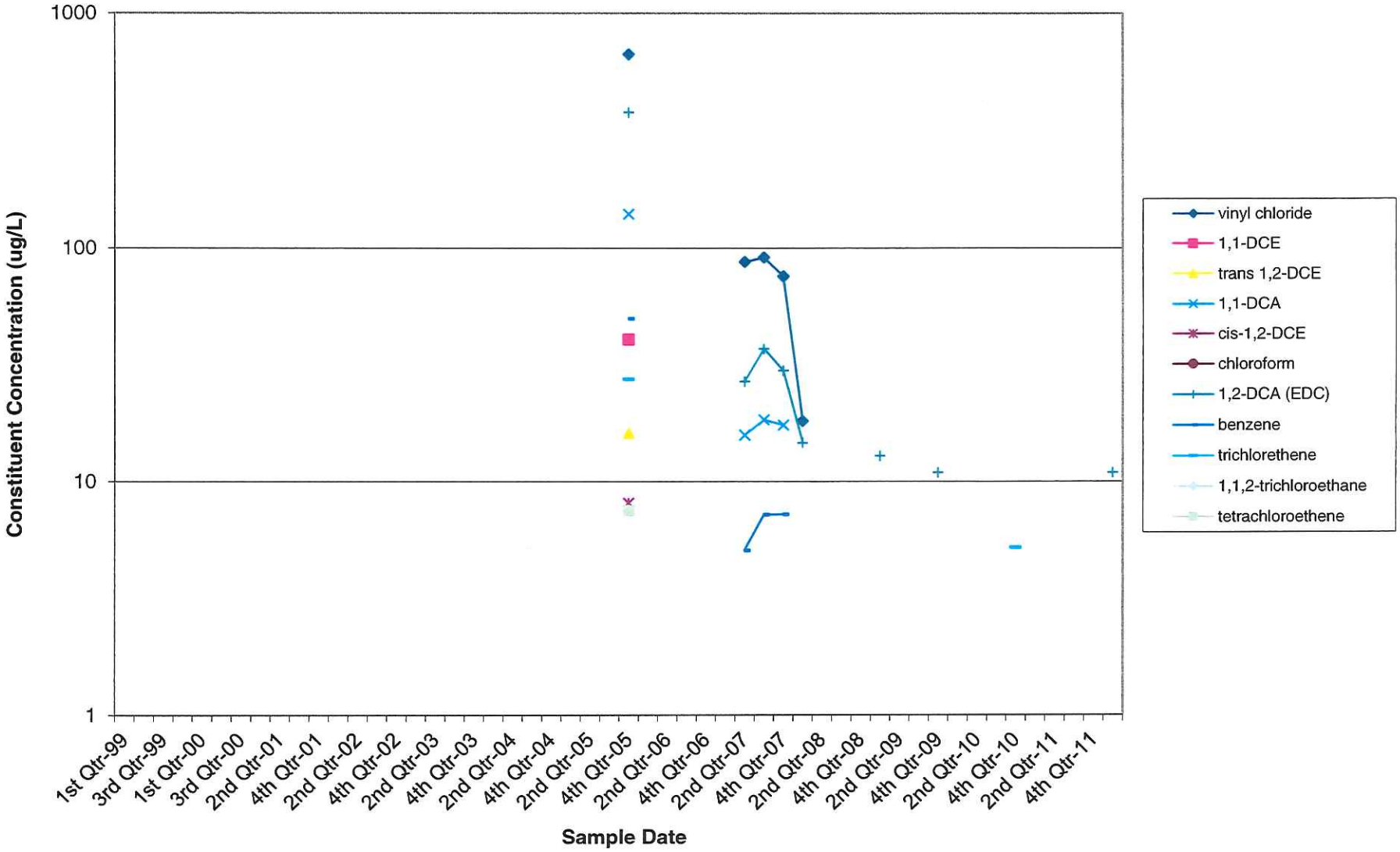
Monitoring Well D-12 Historical Concentrations



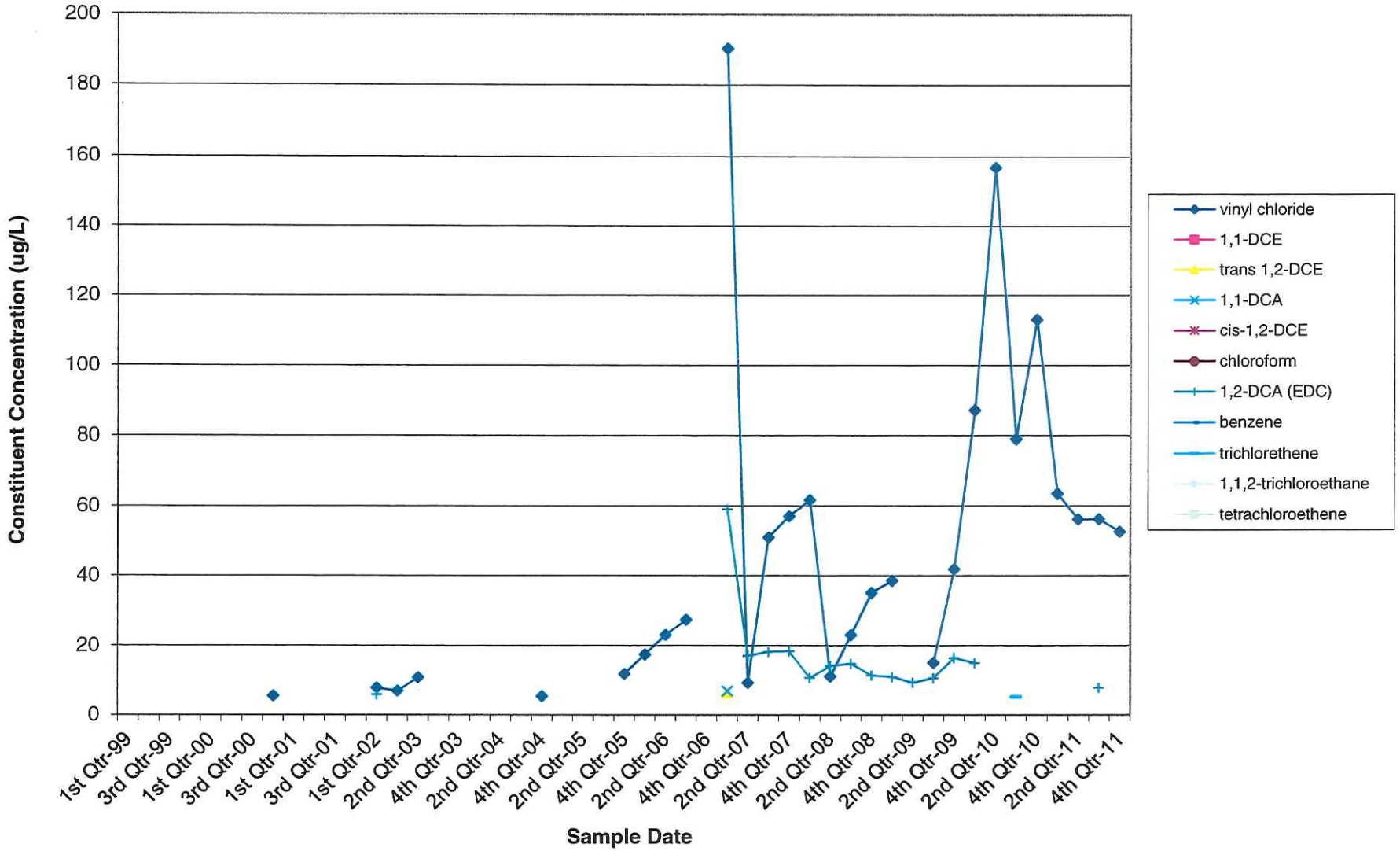
Monitoring Well D-13 Historical Concentrations



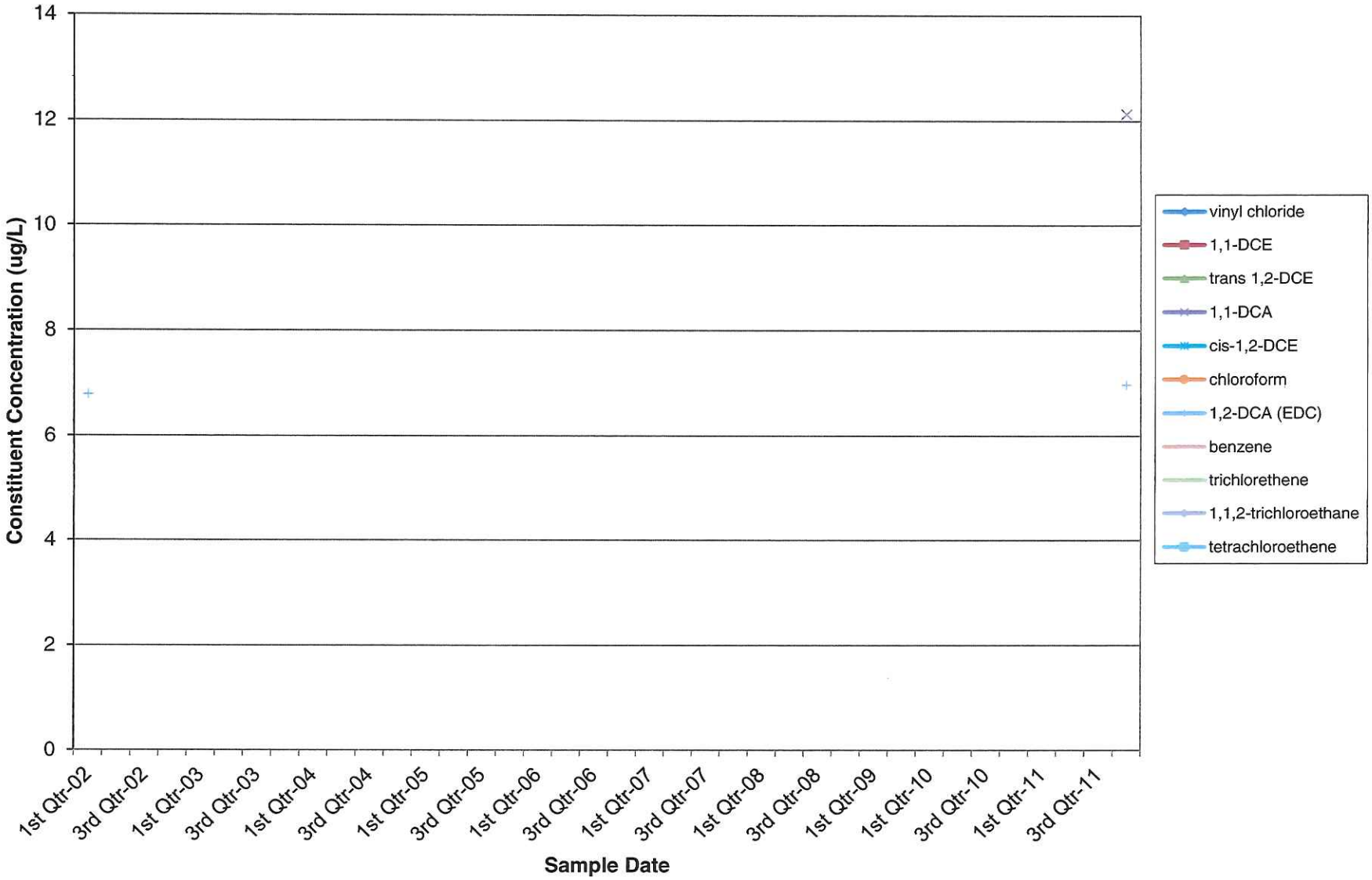
Monitoring Well D-14 Historical Concentrations



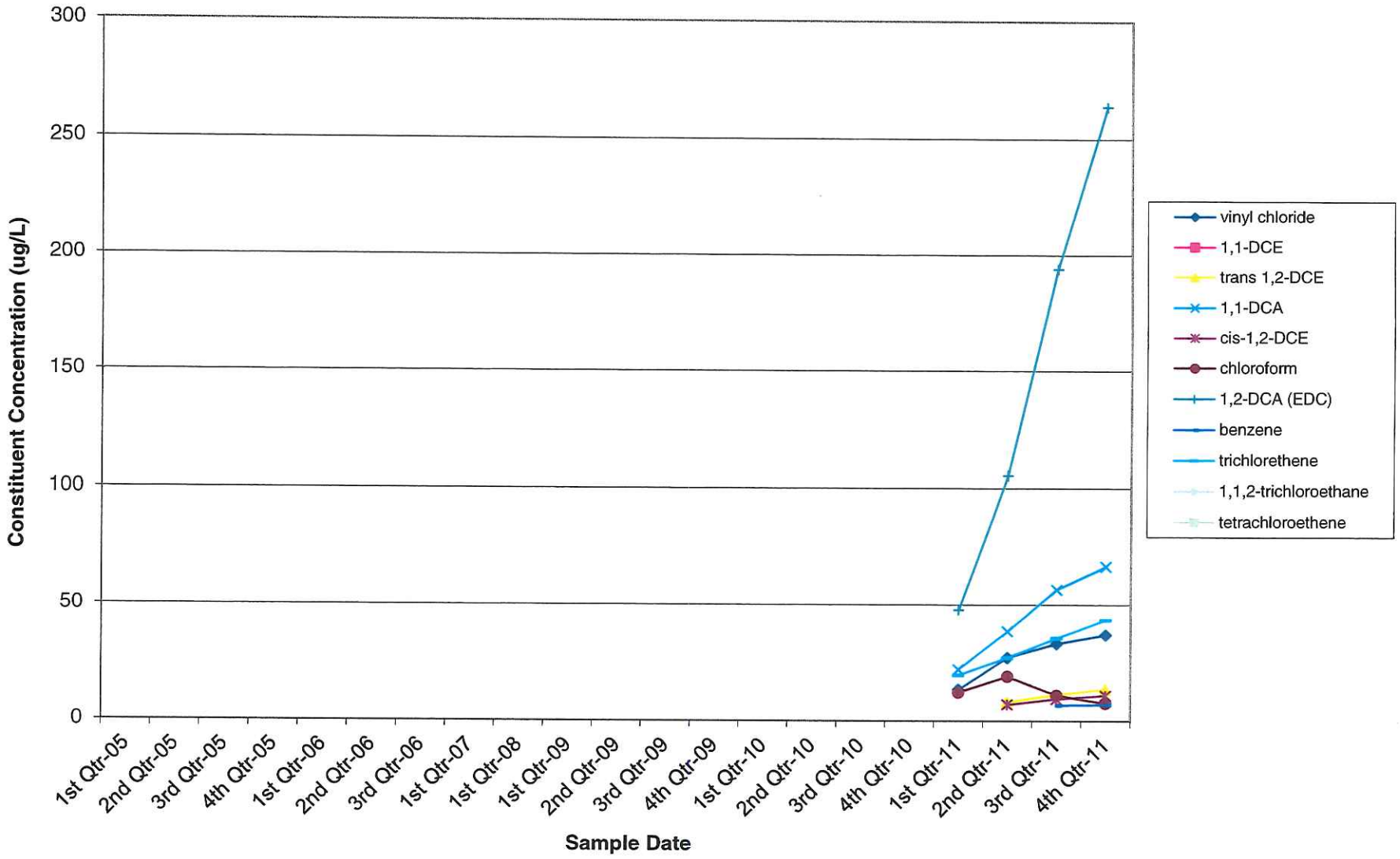
Monitoring Well D-16 Historical Concentrations



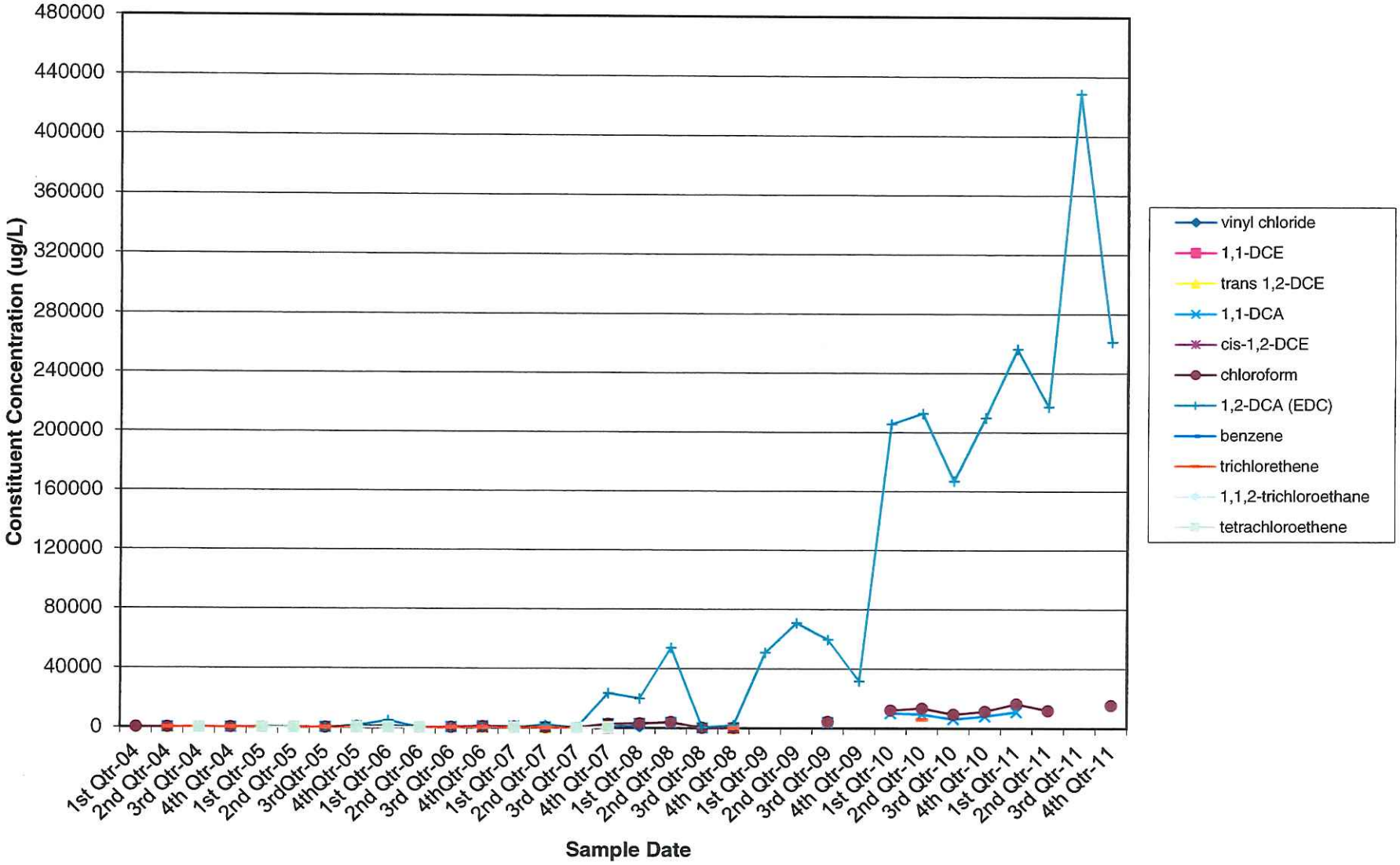
Monitoring Well D-34 Historical Concentrations



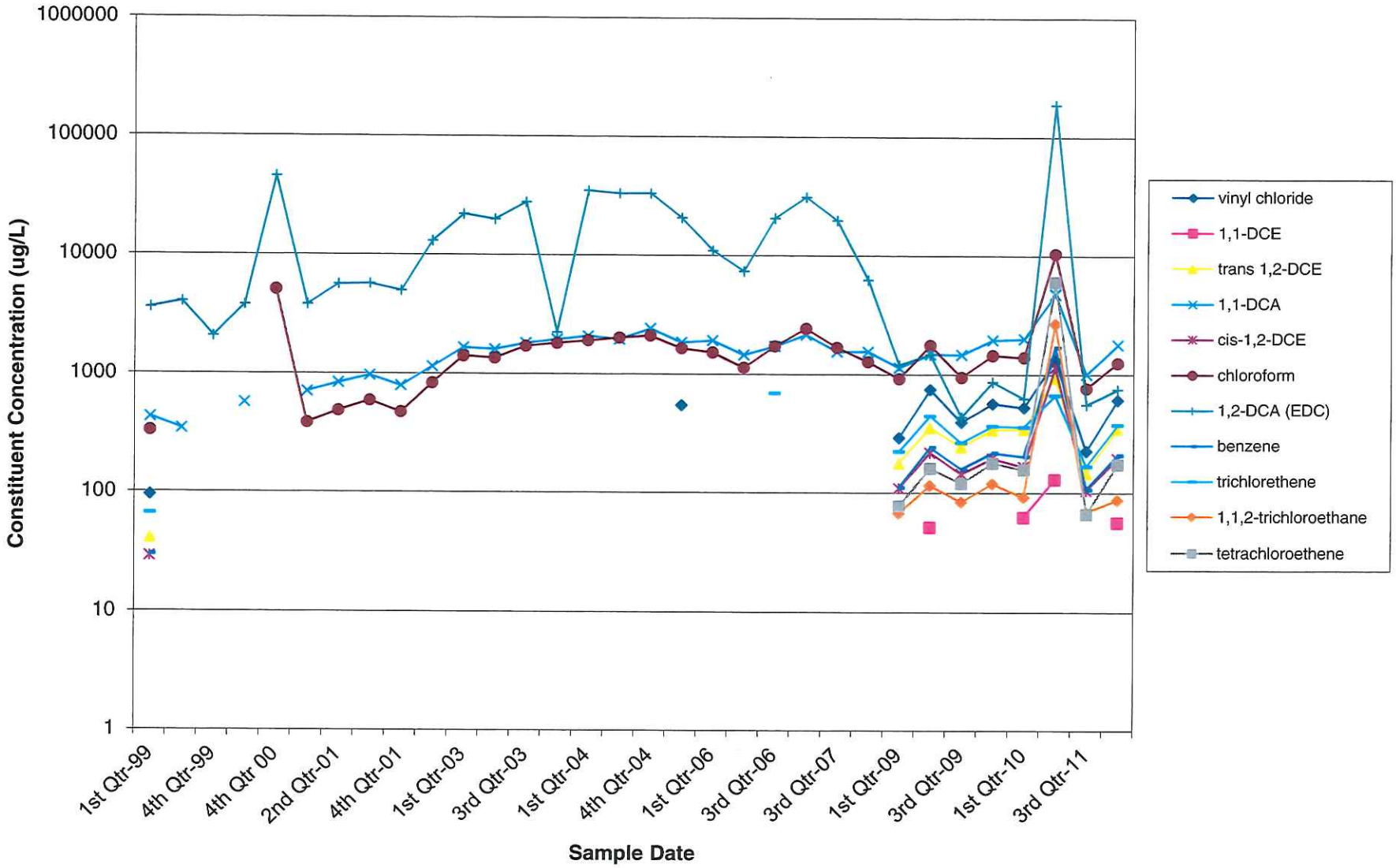
Monitoring Well D-39 Historical Concentrations



Monitoring Well D-41 Historical Concentrations



Recovery Well RD-1 Historical Concentrations



APPENDIX J
DATA EVALUATION CHECKLISTS

Tetra Tech
Data Evaluation Checklist

Tetra Tech Project No.: **114-021356– 4th Quarter 2011 Groundwater Samples - Formosa Plastics Corporation, Texas**

Lab: **Technical Department, Formosa Plastics Corporation, Texas (FPC-TX)**

Lab Sample Numbers: **Refer to summary table in Comments section below**

Matrix/Analytical Methods: **Groundwater/ Volatile Organic Compounds (VOCs)**

Field Sample Ids: **Refer to summary table in Comments section below**

	YES	NO
1. Is a Work Plan, SAP, or QAPP available? • **Groundwater Sampling Protocol**	Y	
2. Chain of Custody Records: Are the COCs present? • **Copies of the COCs were reviewed.**	Y	
Are the COCs complete and signed off?	Y	
Were the samples received at or below 4 ± 2°C? • **The three cooler temperatures were 2°C upon receipt at the laboratory.**	Y	
Were all samples on the COCs analyzed?	Y	
Were any problems noted?		N
3. Was a project narrative available from the laboratory? • **A project narrative is typically not provided; however, the lab provided a summary following corrections to the December 1, 2011 analytical batch. See details below and in Data Corrections section.**	Y	
Were any problems noted? • **The lab provided a summary on January 20, 2012 that describes corrections to the December 1, 2011 analytical batch. The FPC-TX Lab identified an error in the sequence log which caused some of the samples in this batch to run through the auto sampler machine out of sequence. The lab injection log files and analytical results were corrected and re-reported with the summary document on January 20, 2012.**	Y	

	YES	NO
4. Were all holding times met?	Y	
5. Was the frequency stated in the Work Plan or SAP for field duplicates, equipment rinsate, and trip blanks met?	Y	
• **33 investigative samples, 3 field duplicates, 3 field blanks and 3 trip blanks**		
6. Were all equipment rinsate blank, trip blank, and method blank results ND?	Y	
• **The analytes of interest were not detected above the method detection limit (MDL) in any trip blanks, field blanks or method blanks.**		
7. Were all matrices, units, and detection limits reported correctly?	Y	
• **Detection limits were elevated for some samples due to dilutions necessary to quantitate high concentrations of some VOCs. Refer to the Detection Limits discussion in the Comments section below.**		
8. Were all surrogate recoveries within control limits?	Y	
• **All surrogate recoveries were within laboratory control limits.**		
• **The surrogate "Dibromofluoromethane" is misspelled in the report.**		
9. Were all laboratory control sample (LCS) spike recoveries within control limits?		NA
• **LCS recoveries were not reported.**		
10. Were all matrix spike (MS) recoveries and relative percent difference (RPDs) within control limits?		N
• **All of the matrix spike/matrix spike duplicate (MS/MSD) recoveries were within laboratory control limits, except for the MS/MSD recovery for toluene from an unrelated project sample which slightly exceeds (112-113%) the lab QC limit of 91 to 109% (Sample IDs 1112070910/1112070911; MS Sample IDs 1112070911/1112070933; MSD Sample ID 111207091A/1112070934).**		
• **The MS surrogate recovery result (54 µg/L) for toluene-d8 was flagged "H" by the lab for an unrelated project sample (Sample ID 1112070910); however, the recovery is within the In-house range of 44 to 54 µg/L.**		
• **All of the MS/MSD RPDs were within laboratory control limits.**		
11. Were all analytical duplicate RPDs within control limits?		NA
• **Analytical duplicates were not reported.**		

	YES	NO
12. Were all field duplicate RPDs within control limits?	Y	

- **Three field duplicate samples were submitted. RPDs were only calculated for the duplicates collected at D-33 and P-9 as no analytes were detected in the duplicate sample from P-55 at concentrations greater than the MDL. Control limits were not established for field duplicate RPDs; however, 30 percent RPD is the standard acceptance criteria for aqueous samples. The field duplicate RPDs were less than 30 percent for all analytes with detectable concentrations.**

13. Was the project completeness goal met?	Y	

PROJECT SUMMARY:

Sample Collection and Transfer

The 33 groundwater, 3 field blank, 3 trip blank, and 3 duplicate samples analyzed for VOCs were collected on November 28-29, 2011 and sent to the Formosa Plastics Corporation (FPC) Laboratory for analysis. All samples listed on the COC were analyzed for VOCs, except for those split samples which were sent to Test America Laboratories for analysis. All samples were analyzed within the acceptable holding time for standardized methods. Analytical methods were not referenced in the data package. Sample temperatures upon receipt at the laboratory were within the recommended range. All samples arrived in good condition.

The table below summarizes the field sample identifications.

Laboratory Sample Identification	COC Field Sample/Cust. Sample	FPC-TX Sample Location Identification	Collection Date (Holding Time Expires)
1112051523	D-32	D-32	11/28/11 (12/12/11)
111205152A	D-33	D-33	11/28/11 (12/12/11)
1112051524	D-34	D-34	11/28/11 (12/12/11)
111205152B	Dup-01	VCM Groundwater Dup-1	11/28/11 (12/12/11)
1112051525	P-18	P-18	11/28/11 (12/12/11)
1112051526	D-5	D-5	11/28/11 (12/12/11)
1112051527	D-16	D-16	11/28/11 (12/12/11)
111205152C	FB-01	Field Blank	11/28/11 (12/12/11)
1112051528	P-57	P-57	11/28/11 (12/12/11)
111205152D	Trip Blank-01	Trip Blank	11/28/11 (12/12/11)
1112061411	p-12	P-12	11/29/11 (12/13/11)
1112061412	d-2	D-2	11/29/11 (12/13/11)
111206141A	RS-1	RS-1	11/29/11 (12/13/11)
1112061413	RD-1	RD-1	11/29/11 (12/13/11)
1112061414	d-14	D-14	11/29/11 (12/13/11)
111206141B	d-13	D-13	11/29/11 (12/13/11)

Laboratory Sample Identification	COC Field Sample/Cust. Sample	FPC-TX Sample Location Identification	Collection Date (Holding Time Expires)
1112061415	d-12	D-12	11/29/11 (12/13/11)
111206141C	p-9	P-9	11/29/11 (12/13/11)
1112061416	FB-03	Field Blank	11/29/11 (12/13/11)
1112061417	d-3	D-3	11/29/11 (12/13/11)
111206141D	p-3	P-3	11/29/11 (12/13/11)
1112061418	p-24	P-24	11/29/11 (12/13/11)
1112061419	RS-4	RS-4	11/29/11 (12/13/11)
1112061420	RS-5	RS-5	11/29/11 (12/13/11)
1112061421	Dup-03	VCM Groundwater Dup-3	11/29/11 (12/13/11)
111206142A	TB-03	Trip Blank	11/29/11 (12/13/11)
1112061422	P-56	P-56	11/29/11 (12/13/11)
1112061424	P-15	P-15	11/29/11 (12/13/11)
1112061425	P-4	P-4	11/29/11 (12/13/11)
111206142B	D-4	D-4	11/29/11 (12/13/11)
111206142D	P-14	P-14	11/29/11 (12/13/11)
111206142F	P-55	P-55	11/29/11 (12/13/11)
1112061429	FB-02	Field Blank	11/29/11 (12/13/11)
1112061431	Dup-02	Field Duplicate	11/29/11 (12/13/11)
1112061432	P-51	P-51	11/29/11 (12/13/11)
111206143C	P-50	P-50	11/29/11 (12/13/11)
111206143D	D-21	D-21	11/29/11 (12/13/11)
1112061434	P-10	P-10	11/29/11 (12/13/11)
1112061435	D-41	D-41	11/29/11 (12/13/11)
1112061436	D-39	D-39	11/29/11 (12/13/11)
1112061439	P-48	P-48	11/29/11 (12/13/11)
1112061441	Trip Blank-2	Trip Blank	11/29/11 (12/13/11)

Accuracy

The accuracy of the data was evaluated based on MS and MSD recoveries, instrument calibration accuracy, surrogate recoveries and various blank sample results.

The MS and MSD recoveries were within laboratory control limits for all matrix spikes, except for the MS/MSD recovery for toluene from an unrelated project sample which slightly exceeds (112-113%) the lab QC limit of 91 to 109% (Sample IDs 1112070910/1112070911; MS Sample IDs 1112070911/1112070933; MSD Sample ID 111207091A/1112070934).

The instrument calibration accuracy was established by initial and continuing calibration data collected during each batch run. Based on the initial tune results, the instrument accuracy was within acceptable limits. The LCS data was not reported.

The reported surrogate recoveries were within laboratory control limits.

The analytes of interest were not detected in any laboratory method blanks at a concentration greater than the reporting limit.

Three (3) field blanks and three (3) trip blanks were submitted for analysis. There were no VOC detections at concentrations greater than the reporting limit in any of the trip blanks or field blanks.

Precision

The laboratory precision was evaluated based on the RPD of the MS and MSD recoveries. All MS/MSD RPDs were within laboratory control limits.

Field duplicates were collected at sites to evaluate field precision, but precision could only be evaluated at D-33 and P-9 because these were the only locations where analytes had detectable concentrations. Inter-laboratory duplicates were collected and analyzed at Test America Laboratories. Project control limits were not established for field duplicate precision; however, 30 percent RPD is the standard acceptance criteria for aqueous samples. The field duplicate RPDs were less than 30 percent for all analytes with detectable concentrations.

Data Corrections

Tetra Tech contacted the QC Supervisor at the FPC-TX laboratory (Mike Rodriquez) on January 17, 2012 and requested that they review laboratory records for possible sample logging or analysis errors for the December 1, 2011 analytical batch. The FPC-TX laboratory reviewed the data and sample log files and determined that a lab error occurred in the sequence log which caused some of the samples in this batch to run through the auto sampler machine out of sequence. This lab error affected the original analytical results reported on January 9, 2012 for the following samples: P-10, P-15, P-55, and P-56. The lab injection log files and analytical results were corrected and re-reported with the attached laboratory summary document on January 20, 2012.

Detection Limits

VOC results for eleven (11) field samples were reported at elevated detection limits due to the concentrations of various organic compounds in the samples. Dilution of the samples was required prior to analysis. However, according to the project manager, analytical results were not to be compared to regulatory action levels so the "Not Detected" results for the samples listed below were not of concern.

Lab Sample Identification	Field Sample ID	VOC Dilution Factor
P-3	p-3	200
P-12	p-12	100
P-18	P-18	10
P-56	P-56	10000
P-57	P-57	10000
D-2	d-2	50
D-12	d-12	20
D-32	D-32	2
D-41	D-41	2000
RS-1	RS-1	2000
RD-1	RD-1	10

Completeness

Analytical results were provided for all samples submitted to the laboratory. The data is 100% complete. The purposes of this project do not involve comparison of the analytical results to action levels, and consequently they are usable without qualification.

Reviewed By: Nikki Scheinost
Date: January 20, 2012

Tetra Tech
Data Evaluation Checklist

Tetra Tech Project No.: **114-021285– 4th Quarter 2011 Groundwater Samples - Formosa Plastics Corporation, Texas**

Lab: **TestAmerica - Houston, Texas**

Lab Sample Numbers: **600-46769-1**

Matrix/Analytical Methods: **Groundwater/ VOCs (SW-846 Method 8260B)**

Field Sample Ids: **D-33, P-9, P-55, and one Trip Blank (Collection dates 11/28/11 and 11/29/11)**

	YES	NO
1. Is a Work Plan, SAP, or QAPP available?	Y	
• **Groundwater Sampling Protocol**		
2. Chain of Custody Records:		
Are the COCs present?	Y	
• **Copies of the COCs were reviewed.**		
Are the COCs complete and signed off?	Y	
Were the samples received at or below 4 ± 2°C?	N	
• **Sample temperatures upon receipt 1.7°C**		
Were all samples on the COCs analyzed?	Y	
Were any problems noted?		N
3. Was a project narrative available from the laboratory?	Y	
Were any problems noted?	Y	
• **Methylene chloride was detected in the Method Blank.**		
4. Were all holding times met?	Y	
5. Was the frequency stated in the Work Plan or SAP for field duplicates, equipment rinsate, and trip blanks met?	Y	
• **Inter-laboratory QC sample splits require only a trip blank to monitor volatile organic cross-contamination during sample transport.**		
6. Were all equipment rinsate blank, trip blank, and method blank results ND?	N	
• **There were no detections above the method detection limit (MDL) in the trip blank.**		
• **There were no detection above the MDL in the method**		

	YES	NO
blanks, except for methylene chloride which was detected between the MDL and the reporting limit (RL).		
7. Were all matrices, units, and detection limits reported correctly? • **Detection limits are those established by the laboratory, adjusted for sample sizes.**	Y	
8. Were all surrogate recoveries within control limits? • All surrogate recoveries were within laboratory control limits.	Y	
9. Were all laboratory control sample (LCS) spike recoveries within control limits? • **LCS % recoveries were within laboratory control limits.**	Y	
10. Were all matrix spike (MS) recoveries and relative percent differences (RPDs) within control limits? • **MS/MSD % recoveries and RPDs were not reported in this data package.**		NA
11. Were all analytical duplicate RPDs within control limits? • **Laboratory duplicates were not reported in this data package.**		NA
12. Were all field duplicate RPDs within control limits? • **All the samples submitted in this data set were the third sample collected from wells for which field duplicates were also collected and sent to Formosa's internal laboratory for analysis. RPDs between the TAL and Formosa laboratory samples could only be calculated for sample results from D-33 and P-9 as no analytes were detected in the duplicate sample from P-55 at concentrations greater than the MDL. All field duplicate RPDs were less than 30%.**	Y	
13. Was the project completeness goal met?	Y	

PROJECT SUMMARY:

Sample Collection and Transfer

Three groundwater samples collected on November 28 and 29, 2011 and one trip blank sample were transported to TestAmerica Laboratories - Houston for volatile organics analyses. All samples listed on the COC were analyzed within recommended holding times. The sample temperatures upon receipt were slightly below the recommended sample storage and transport limits of less than 4 ± 2°C.

Accuracy

The accuracy of the data was evaluated based on the extraction efficiencies (for the LCS sample and surrogates) and various blank sample results. The LCS recoveries were within the laboratory control

limits for each analyte.

Surrogates are used to evaluate instrument and method performance for similar types of organic compounds by monitoring matrix effects on non-target analytes. All surrogate recoveries were within laboratory control limits for each compound.

The method blank and trip blank results were not detected above the MDL for all analytes, except for methylene chloride which was detected in the method blank sample (Batch 67522). Methylene chloride was not detected in any of the field samples or trip blank; therefore no data qualification is necessary.

Precision

Analytical precision was evaluated based on the agreement between field duplicate samples. Project control limits were not established for field duplicate samples; however, 30% RPD is the standard acceptance criteria for aqueous samples. RPDs between the TAL and Formosa laboratory samples could only be calculated for sample results from D-33 and P-9. All field duplicate RPDs were less than 30%.

Completeness

Analytical results were received for all samples submitted to the laboratory for analysis. The data set is 100% complete. The data are usable for the purposes of evaluating the analytical precision and accuracy of Formosa's on-site laboratory.

Reviewed By: Nikki Scheinost
Date: January 20, 2012

COMPARISON OF INTER-LABORATORY DUPLICATE RESULTS
FOURTH QUARTER 2011

FIELD SAMPLE ID	ANALYTE	UNITS	FORMOSA SAMPLE RESULT	FORMOSA DUPLICATE RESULT	FORMOSA RPD %	TestAmerica SAMPLE RESULT	INTER-LAB RPD %
D-33	1,1-Dichloroethane	µg/L	30.88	31.59	2.27	38	20.67
	1,2-Dichloroethane	µg/L	16.27	14.99	8.19	14	15.00
	Vinyl chloride	µg/L	32.93	35.99	8.88	42	24.21
P-9	1,1-Dichloroethane	µg/L	41.10	35.71	14.03	37	10.50
	1,2-Dichloroethane	µg/L	18.14	18.81	3.63	16	12.54
	Trichloroethene	µg/L	17.24	14.96	14.16	17	1.40
	Vinyl chloride	µg/L	21.26	18.05	16.33	18	16.61

Notes:
Table summarizes only detectable analyte concentrations.

Correction to Analytical Batch 12/1/11

On the morning of 12/2/11 an error in the sequence log was found. P-55 was left off the hpchem station sequence. All the samples in the autosampler were ran. P-55 was found the third from the last. From this information I moved the results one down, putting the P-56 results for P-55 and the D-39 results for P-56.

Tetratech called the morning of 1/17/12 informing us that the sample in question P-55 was a blind duplicate sample that they used to send off to an outside lab. Our results didn't match. We then went back to review the original problem again. We discovered that gap's in the injection log we're made when samples are added to the log. This is an easy place for a mistake to happen.

By looking at the injection log we immediatielly decided which samples were in question.

D-12, D-13, D-41 were all correctly ran.

Dup-02, Dup-03, P-4 and D-39 were all re-ran and reported off of a different batch.

P-10, P-15, P-50, P-51, P-55, and P-56 were all in question.

On 1/17/12 we re-ran these samples for qualification purposes. We discovered the mistake was made before the P-4 sample ran, putting all the samples one up on the hpchem station log. Thus P-4 was actually P-10, etc. The corrections were then made in the results and re-reported to Tetratech.

Injection Log

Directory: C:\HPCHEM\1\DATA\120111

12/08/11 07:27 AM-JCW/RSH

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	Blank.d	1.	method blank	A	1 Dec 2011 09:37
2	1	Cc.d	1.	continuing calibration	NONE	1 Dec 2011 10:06
3	22	D_12.d	1.	11/29/11	vcm gw 1:20	1 Dec 2011 12:27
4	23	D_13.d	1.	11/29/11	vcm gw 1:5	1 Dec 2011 13:55
5	31	D_39.d → reporting error		11/29/11	vcm gw 1:2	1 Dec 2011 20:09
6	24	D_41.d	1.	11/29/11	vcm gw 1:5000	1 Dec 2011 15:21
7	25	D_41a.d	1.	11/29/11	vcm gw 1:10000	1 Dec 2011 15:50
8	23	Dup_02.d	1.	11/29/11	vcm gw 1:5000	1 Dec 2011 16:19
9	24	Dup_03.d	1.	11/29/11	vcm gw 1:1000	1 Dec 2011 16:47
10	25	P_04.d P10	1.	11/29/11	vcm gw 1:2	1 Dec 2011 17:16
11	26	P_10.d P15	1.	11/29/11	vcm gw	1 Dec 2011 17:45
12	27	P_15.d P50	1.	11/29/11	vcm gw	1 Dec 2011 18:14
13	28	P_50.d P51	1.	11/29/11	vcm gw	1 Dec 2011 18:43
14	29	P_51.d P55	1.	11/29/11	vcm gw	1 Dec 2011 19:12
15	30	P_56.d P-56	1.	11/29/11	vcm gw 1:10000	1 Dec 2011 19:41
16	23	Ttt_34b.d	1.	12/01/11	cwtp	1 Dec 2011 10:48
17	23	Ttt_34ms.d	1.	12/01/11	cwtp	1 Dec 2011 11:46
18	23	Ttt34ms2.d	1.	12/01/11	cwtp	1 Dec 2011 12:56
19	23	Ttt34ms3.d	1.	12/01/11	cwtp	1 Dec 2011 14:23
20	24	Ttt34ms4.d	1.	12/01/11	cwtp	1 Dec 2011 14:52
21	23	Ttt34msd.d	1.	12/01/11	cwtp	1 Dec 2011 11:17

APPENDIX K
RECOVERY SYSTEM PERFORMANCE DATA

.'CM Department Ground Water Flow Report

	VC-630 Run time		RS-1		RD-1		RS-2		RS-3		RD-3		RS-4		RS-5		RS-6	
Date	Hours	Min.	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal
10/1/2011	24	0	1577491	2397	53352	191	22846	0	521	0	8486	0	4450032	4253	419516	1610	44432	0
10/2/2011	24	0	1579320	1829	53535	183	22846	0	521	0	8486	0	4454754	4722	420983	1467	44432	0
10/3/2011	24	0	1580836	1516	53686	151	22846	0	522	1	8486	0	4458623	3869	422325	1342	44432	0
10/4/2011	24	0	1580836	1516	53686	151	22846	0	522	1	8486	0	4458623	3869	422325	1342	44432	0
10/5/2011	24	0	1584539	3703	54034	348	22846	0	522	0	8486	0	4467587	8964	425207	2882	44432	0
10/6/2011	24	0	1587408	2869	54215	181	22846	0	522	0	8486	0	4472313	4726	426004	797	44432	0
10/7/2011	24	0	1590040	2632	54372	157	22846	0	522	0	8486	0	4476355	4042	426986	982	44432	0
10/8/2011	24	0	1592987	2947	54537	165	22846	0	522	0	8486	0	4480781	4426	428029	1043	44432	0
10/9/2011	24	0	1595989	3002	54705	168	22846	0	522	0	8486	0	4485291	4510	428636	607	44432	0
0/10/201	24	0	1596732	743	54913	208	22846	0	522	0	8486	0	4490951	5660	428636	0	44432	0
0/11/201	24	0	1597953	1221	55036	123	22846	0	522	0	8486	0	4494461	3510	428636	0	40	0
0/12/201	24	0	1600170	2217	55201	165	22846	0	522	0	8486	0	4498935	4474	429283	647	40	0
0/13/201	24	0	1603472	3302	55385	184	22846	0	522	0	8486	0	4503809	4874	430716	1433	40	0
0/14/201	24	0	1606300	2828	55560	175	22840	0	520	0	8480	0	4508960	5151	431820	1104	44432	44392
/201	24	0	1607690	1390	55680	120	22840	0	520	0	8480	0	4512210	3250	432550	730	44432	0
0/16/201	24	0	1609580	1890	55830	150	22840	0	520	0	8480	0	4516670	4460	433360	810	44432	0
0/17/201	24	0	1611854	2274	55982	152	22846	6	524	4	8486	6	4520964	4294	434262	902	44432	0
0/18/201	24	0	1614711	2857	56132	150	22846	0	525	1	8486	0	4525128	4164	435365	1103	44432	0
0/19/201	24	0	1616367	1656	56283	151	22846	0	525	0	8486	0	4539356	14228	435366	1	44432	0
0/20/201	24	0	1617723	1356	56440	157	22846	0	525	0	8486	0	4533617	0	435265	0	44432	0
0/21/201	24	0	1619003	1280	56616	176	22846	0	525	0	8486	0	4538476	4859	435365	100	44432	0
0/22/201	24	0	1621580	2577	56770	154	22840	0	526	1	8486	0	4542610	4134	435820	455	44432	0

Wednesday, January 18, 2012

	VC-630 Run time		RS-1		RD-1		RS-2		RS-3		RD-3		RS-4		RS-5		RS-6	
Date	Hours	Min.	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal
0/23/201	24	0	1624718	3138	56939	169	22845	5	526	0	8486	0	4547014	4404	436529	709	44432	0
0/24/201	24	0	1627546	2828	57070	131	22840	0	520	0	8480	0	4551698	4684	437540	1011	44432	0
0/25/201	24	0	1630282	2736	57212	142	22846	6	526	6	8486	6	4554663	2965	438224	684	44432	0
0/26/201	24	0	1633268	2986	57361	149	22846	0	526	0	8486	0	4558780	4117	439208	984	44432	0
0/27/201	24	0	1636637	3369	57539	178	22840	0	527	1	8480	0	4563268	4488	441060	1852	44432	0
0/28/201	24	0	1638256	1619	57678	139	22846	6	527	0	8487	7	4567418	4150	440493	0	44432	0
0/29/201	24	0	1638818	562	57834	156	22846	0	528	1	8487	0	4571802	4384	440493	0	44432	0
0/30/201	24	0	1639099	281	57982	148	22846	0	528	0	8486	0	4575825	4023	440493	0	44432	0
0/31/201	24	0	1639965	866	58093	111	22846	0	528	0	8486	0	4579568	3743	440493	0	44432	0
Totals for the Month				**66387**		**5083**		**23**		**16**		**19**		**143397**		**24597**		**44392**
Averages for the Mon				**2141.5**		**164.0**		**0.7**		**0.5**		**0.6**		**4625.7**		**793.5**		**1432.0**
11/1/2011	24	0	1641086	1121	58241	148	22846	0	528	0	8486	0	4584493	4925	440493	0	44432	0
11/2/2011	24	0	1643071	1985	58415	174	22846	0	528	0	8486	0	4587454	2961	440493	0	44432	0
11/3/2011	24	0	1645014	1943	58562	147	22846	0	528	0	8486	0	4591367	3913	440493	0	44432	0
11/4/2011	24	0	1645014	0	58713	151	22845	0	578	50	8486	0	4595307	3940	440493	0	44432	0
11/5/2011	24	0	1645014	0	58843	130	22846	1	528	0	8486	0	4598563	3256	440493	0	44432	0
[illegible]/2011	24	0	1647520	2506	58990	147	22846	0	528	0	8486	0	4602377	3814	440493	0	44432	0
[illegible]/2011	24	0	1650819	3299	59153	163	22846	0	528	0	8486	0	4606602	4225	440493	0	44432	0
11/8/2011	24	0	1653641	2822	59290	137	22846	0	528	0	8486	0	4610219	3617	440493	0	44432	0
11/9/2011	24	0	1656100	2459	59431	141	22846	0	527	0	8486	0	4613930	3711	440493	0	44432	0
1/10/201	24	0	1657575	1475	59601	170	22846	0	528	1	8487	1	4618362	4432	440493	0	44432	0
1/11/201	24	0	1658640	1065	59730	129	22840	0	520	0	8480	0	462726	0	440490	0	44432	0
1/12/201	24	0	1660040	1400	59880	150	22840	0	520	0	8480	0	4625930	4E+06	440490	0	44432	0
1/13/201	24	0	1662830	2790	60020	140	22840	0	520	0	8480	0	4629490	3560	440490	0	44432	0
1/14/201	24	0	1665455	2625	60153	133	22846	6	527	7	8486	6	4632845	3355	440493	3	44432	0

	VC-630 Run time		RS-1		RD-1		RS-2		RS-3		RD-3		RS-4		RS-5		RS-6	
Date	Hours	Min.	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal
1/15/201	24	0	1668459	3004	60307	154	22845	6	527	7	8487	1	4636563	3718	440493	3	44432	0
1/16/201	24	0	1671113	2654	60436	129	22845	0	527	0	8486	0	4640057	3494	440493	0	44432	0
1/17/201	24	0	167319	0	6058	0	22845	0	527	0	8486	0	4643805	3748	440974	481	44432	0
1/18/201	24	0	1674964	2E+06	60764	54706	22845	0	528	1	8486	0	4648661	4856	440974	0	44432	0
1/19/201	24	0	1677262	2298	60872	108	22846	1	528	0	8486	0	4651355	2694	440974	0	44432	0
1/20/201	24	0	1680221	2959	61005	133	22846	0	530	2	8486	0	465493	0	440974	0	44432	0
1/21/201	24	0	1683201	2980	61135	130	22846	0	539	9	8486	0	4658285	4E+06	440974	0	44432	0
1/22/201	24	0	1685988	2787	61255	120	22846	0	539	0	8486	0	4661429	3144	440974	0	44432	0
1/23/201	24	0	1687313	1325	61384	129	22840	0	539	0	8487	1	4664786	3357	440974	0	44432	0
1/24/201	24	0	1688160	847	61510	126	22840	0	530	0	8480	0	4668160	3374	440970	0	44432	0
1/25/201	24	0	1689366	1206	61654	144	22846	6	539	9	8486	6	4671780	3620	440974	4	44432	0
1/26/201	24	0	1692108	2742	61784	130	22846	0	539	0	8486	0	4675012	3232	440974	0	44432	0
1/27/201	24	0	1692918	810	61908	124	22846	0	539	0	8486	0	4678075	3063	440974	0	44432	0
1/28/201	24	0	1693335	417	62016	108	22846	0	539	0	8486	0	4680750	2675	440974	0	44432	0
1/29/201	24	0	1694345	1010	62141	125	22846	0	539	0	8486	0	4683734	2984	440974	0	44432	0
1/30/201	24	0	1695813	1468	62270	129	22845	0	539	0	8486	0	4686681	2947	440974	0	44432	0
Totals for the Month				**2E+06**		**58555**		**20**		**86**		**15**		**8E+06**		**491**		**0**
ages for the Mon				**51988.1**		**1951.8**		**0.7**		**2.9**		**0.5**		**281620.4**		**16.4**		**0.0**
12/1/2011	24	0	1696708	895	62400	130	22845	0	539	0	8486	0	4689590	2909	440974	0	44432	0
12/2/2011	24	0	1699570	2862	62530	130	22840	0	530	0	8480	0	4692500	2910	440970	0	44432	0
12/3/2011	24	0	1701039	1469	62678	148	22846	6	530	0	8487	7	4695083	2583	440975	5	44432	0
12/4/2011	24	0	1704113	3074	62806	128	22846	0	530	0	8487	0	4697572	2489	440975	0	44432	0
12/5/2011	24	0	1705026	913	62949	143	22846	0	539	9	8486	0	4699893	2321	440974	0	44432	0
12/6/2011	24	0	1705026	0	63081	132	22846	0	539	0	8487	1	4702442	2549	440974	0	44432	0
12/7/2011	24	0	1705026	0	63144	63	22845	0	539	0	8486	0	4704242	1800	440974	0	44432	0

Wednesday, January 18, 2012

	VC-630 Run time		RS-1		RD-1		RS-2		RS-3		RD-3		RS-4		RS-5		RS-6	
Date	Hours	Min.	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal
12/8/2011	24	0	1705026	0	63248	104	22845	0	539	0	8486	0	4706524	2282	440974	0	44432	0
12/9/2011	24	0	1705904	878	63467	219	22845	0	539	0	8486	0	4708780	2256	440974	0	44432	0
2/10/201	24	0	1706820	916	63650	183	22840	0	530	0	8480	0	4711280	2500	440970	0	44432	0
2/11/201	24	0	1706900	80	63810	160	22840	0	530	0	8480	0	4713470	2190	440970	0	44432	0
2/12/201	24	0	1706907	7	63960	150	22846	6	530	0	8486	6	4715391	1921	440974	4	44432	0
2/13/201	24	0	1707705	798	64408	448	22846	0	530	0	8486	0	4717406	2015	440975	1	44432	0
2/14/201	24	0	1710297	2592	64748	340	22846	0	530	0	8486	0	4719462	2056	440974	0	44432	0
2/15/201	24	0	1712365	2068	64976	228	22846	0	530	0	8486	0	4721405	1943	440974	0	44432	0
2/16/201	24	0	171438	0	65157	181	22845	0	530	0	8486	0	4723514	2109	440974	0	44432	0
2/17/201	24	0	1714430	2E+06	65370	213	22840	0	530	0	8480	0	4725700	2186	440970	0	44430	0
2/18/201	24	0	1714960	530	65510	140	22840	0	530	0	8480	0	4727760	2060	440970	0	44430	0
2/19/201	24	0	1715970	1010	65650	140	22840	0	530	0	8480	0	4729720	1960	440970	0	44432	0
2/20/201	24	0	1716960	990	65810	160	22840	0	530	0	8480	0	4731750	2030	440970	0	44432	0
2/21/201	24	0	1716965	5	65989	179	22845	5	539	9	8486	6	4734002	2252	440974	4	44432	0
2/22/201	24	0	1717074	109	66141	152	22845	0	539	0	8486	0	4736181	2179	440974	0	44432	0
2/23/201	24	0	1717481	407	66287	146	22846	1	530	0	8486	0	4738071	1890	440974	0	44432	0
2/24/201	24	0	1717646	165	66435	148	22846	0	530	0	8486	0	4740140	2069	440974	0	44432	0
5/201	24	0	1717646	0	66624	189	22846	0	530	0	8487	1	4742469	2329	440974	0	44432	0
2/26/201	24	0	1717640	0	67000	376	22840	0	530	0	8487	0	4744220	1751	440974	0	44432	0
2/27/201	24	0	1717892	252	67235	235	22845	5	539	9	8487	0	4746385	2165	440974	0	44432	0
2/28/201	24	0	1718852	960	67397	162	22845	0	539	0	8486	0	474862	0	440974	0	44432	0
2/29/201	24	0	1719744	892	67532	135	22845	0	539	0	8486	0	4750947	4E+06	440974	0	44432	0
2/30/201	24	0	1719744	0	67678	146	22845	0	539	0	8486	0	4753283	2336	440974	0	44432	0
2/31/201	24	0	1719740	0	67820	142	22840	0	530	0	8480	0	4755860	2577	44097	0	44432	0

	VC-630 Run time		RS-1		RD-1		RS-2		RS-3		RD-3		RS-4		RS-5		RS-6	
Date	Hours	Min.	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal	Counter	Gal
Totals for the Month				2E+06		5550		23		27		21		4E+06		14		0
Averages for the Mon				50479.5		179.0		0.7		0.9		0.7		140022.6		0.5		0.0